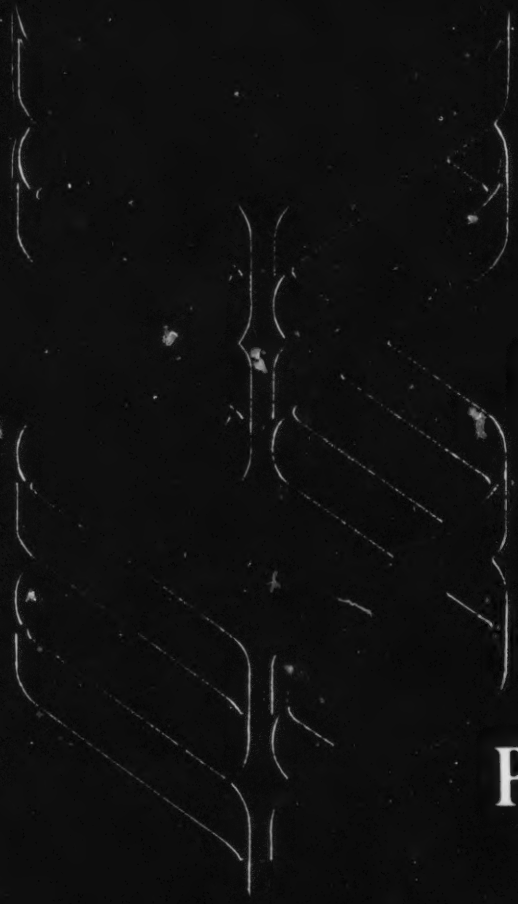

Heritage Fund

FARMING FOR THE FUTURE

1986 PROGRESS REPORT

87-00997/

FARMING FOR THE FUTURE PROGRESS REPORT 1986

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CHAIRMAN'S REPORT 1985-86

As Chairman of the Agricultural Research Council of Alberta (ARCA), I'm pleased to present Farming for the Future's seventh annual progress report, which covers the operating year April 1, 1985 to March 31, 1986.

Farming for the Future enters its eighth year of operation with an impressive record of service to Alberta's agriculture industry. During my short time as ARCA Chairman, it's been my pleasure to review the program's progress, and I'm proud to note that it has sustained a high level of performance. Today, as the second mandate nears completion, Farming for the Future continues to expand the base of agricultural knowledge in the province, and to produce tangible, significant benefits for Alberta's farmers and food processors.

These benefits were very much in evidence in 1985-86, which saw the culmination of a number of important projects – from new livestock vaccines to new crop varieties – that seem likely to equal, if not surpass, our successes of previous years.

Also in 1985-86, the ARCA enacted a number of policy shifts which will influence the conduct of the program in any future mandate it may receive. First is the Council's decision to direct funding activities away from long-term projects in favor of short-term, well-defined projects that provide rapid returns on invested funds. The ARCA will also place greater emphasis in future on studies involving agricultural processing, in keeping with the government's commitment to expanding Alberta's economic base.

Finally, while the ARCA has always encouraged commercial organizations to participate in the program, it recently expanded its efforts in this area and funding allocated to private initiatives more than doubled from 1985-86 to 1986-87. Such private sector efforts both strengthen Alberta's research resources and pave the way for commercial initiatives which can diversify our provincial economy.

In addition to these policy changes, the year brought a number of changes in the membership and the executive of the ARCA. Completing their terms on the Council in 1985-86 were Mr. Clarence Anderson, Mr. Neil Harris and Mr. Walter Van de Walle, our producer members from Barrhead, Beaverlodge and Legal, respectively. The long and dedicated service of these men is gratefully acknowledged by all Council members, and their excellent judgement and sound advice will be greatly missed.

Completing his term as Secretary of the Agricultural Research Council was Dr. Art Olson, the Department's Assistant Deputy Minister responsible for Research and Resource Development. Dr. Jim Mahone, Director of Alberta Agriculture's Research Division, assumed the position of Secretary of the Council in August 1985. Dr. Olson is continuing as a regular member of Council. As the original Secretary of the ARCA and the sole remaining member of those men who guided Farming for the Future from the very beginning, Dr. Olson must be commended for his long and loyal service to the cause of agricultural research in Alberta.

The Council welcomed two new producer members in 1985-86, Mr. Elmer Kadatz of Edmonton and Mr. Leroy Niedermier of Lethbridge. Mr. Kadatz was appointed Chairman of the Ruminants Program Committee and Mr. Niedermier was named Chairman of the Special Crops Program Committee.These new members bring to the Council sound knowledge of agriculture and a firm commitment to agricultural research. I look forward to working with them.

One further Council change occurred this May, when I assumed the post of Minister of Agriculture from my predecessor, the Honourable LeRoy Fjordbotten, who became Minister of Tourism. As chairman of the ARCA, and, prior to that, as the MLA member on the ARCA, LeRoy spent more than seven years helping to provide strong leadership to Alberta's most successful agricultural research funding effort. I know all Council members join me in thanking him for his contributions to agricultural research in Alberta and extending to him best wishes in his new portfolio and in all his future endeavors.

In conclusion, I know I am joined by all on the Council in expressing my appreciation to the many scientists, committee members, administrative staff and others, whose skills and hard work were instrumental in making Farming for the Future a success once again in 1985-86. All involved with the program can be justly proud of their contributions to the agriculture sector and the people of Alberta.

Farming for the Future has generated numerous benefits for the agriculture industry during its seven years of operation. The program's performance has confirmed the wisdom of our investment in agricultural research. Its current mandate will be completed on March 31, 1987, and the program's future direction is now under consideration. Meanwhile, Farming for the Future continues to make an important and a lasting contribution to the province and its people.

Peter Elzinga
Minister of Agriculture
Chairman, Agricultural Research Council of Alberta
September 1986

INTRODUCTION

Agriculture thrives on innovation. New and improved production techniques are essential if Alberta's farmers are to keep pace with changing consumer demand and increasing competition for markets at home and abroad.

To meet this pressing need for technological advancement, Farming for the Future was established by the Province in 1977. Supported by the Alberta Heritage Savings Trust Fund, the program has the dual objective to improve net farm income and promote the long-term viability of the agriculture sector.

In pursuit of this objective, Farming for the Future funds a wide range of research and demonstration activities, which are conducted throughout the province by public and private sector scientists and members of the farming industry. Projects may relate to any aspect of agricultural production, so long as the work performed is of direct benefit to Alberta's agriculture sector.

Farming for the Future began its first, five-year term in 1979, and was granted a second, three-year mandate in 1984. Between April 1, 1979, when the program commenced operations, and March 31, 1986, more than $33 million was granted to support over 600 research and demonstration projects. The program's current mandate expires March 31, 1987.

The Research Program, Farming for the Future's primary funding vehicle, supports basic and applied agricultural experimentation. In 1985-86, this program awarded grants totalling $4.8 million to 38 new and 65 renewed research projects. Funding of $4.5 million has been approved for 58 renewed and 36 new studies in 1986-87.

The activities of the Research Program are complemented by those of the On-Farm Demonstration Program, the extension component of Farming for the Future. To expedite the transfer of research findings from the laboratory to the farming community, the program sponsors producers to hold demonstrations of innovative technology and techniques in actual farm settings. In total, 117 such projects were carried out in 1985-86, at a cost of $358,170.

To supplement the extension activities of the On-Farm Demonstration Program, technical information arising from research projects is disseminated by project managers and by line divisions of Alberta Agriculture. In addition, the Department's Research Division publishes a variety of informative articles and issues numerous press releases highlighting program achievements.

Farming for the Future is administered by the Agricultural Research Council of Alberta, a 15-member body of scientists, producers, legislators and representatives of the public sector. The Council is chaired by the Minister of Agriculture for Alberta.

AGRICULTURAL RESEARCH COUNCIL OF ALBERTA ACTIVITIES

The Agricultural Research Council of Alberta (ARCA) reviews and approves all expenditures by Farming for the Future, and establishes policies and procedures for program activities. At the annual meeting of the Council in February 1985, members considered 244 Research Program project proposals, approving 94 of these for financial support in 1986-87. Proposals for On-Farm Demonstrations are approved throughout the operating year.

In pursuing its commitment to developing the province's scientific resources, the Agricultural Research Council was involved in a number of other research-related activities in 1985-86. During the year, the Council approved grants totalling $14,000 from Farming for the Future to support two major conferences on agricultural technology. As well as fostering international recognition for Alberta's research community, these conferences brought internationally-acclaimed scientists to the province, to share their knowledge and expertise with Albertans. The substantial benefits offered by such events have prompted the ARCA to allot significantly greater funding to support conferences and symposia in 1986-87.

The Council also hosted its second annual Farming for the Future Research Conference in March 1986. The conference, which was held in Edmonton, provided a forum for discussion of research projects and policy, and featured presentations by producers and scientists participating in the program. It was well attended by members of the farming community and by representatives of producer organizations, universities, private industry, and the public sector. Conference proceedings were scheduled to be compiled, published, and distributed later in the year.

In 1985-86, the Agricultural Research Council continued to promote public awareness of Farming for the Future and its activities. The *Farming for the Future Progress Report 1985* was published by the Council during the year, and two articles describing research and demonstration projects were issued as inserts in *Country Guide* magazine. In addition, two compilations of final reports for the On-Farm Demonstration Program were released in bound form, and a videotape describing an On-Farm Demonstration Program project was produced.

THE RESEARCH PROGRAM

In 1984-85, the Research Program continued to foster advances in agricultural science through support of basic and applied research. During the fiscal year, grants totalling $4,823,067 were awarded to 103 Research Program projects, of which 65 were renewed and 38 were new. Total funding of $4,561,557 has been approved for 58 renewed and 36 new studies in 1986-87.

Applications for support from the Research Program are evaluated by any of nine program committees appointed by the Agricultural Research Council. Committee members provide expertise in the areas of cereals and oilseeds; crop protection and entomology; forages; irrigation; land resources and engineering; non-ruminants; processing, transportation, marketing and socio-economics; ruminants; and special crops.

Project proposals are judged on the basis of potential value to the agriculture sector, soundness and completeness of the research design, the experience of the applicant, and the size, duration and cost of the undertaking. After considering each proposal, program committees forward their recommendations to the ARCA for a final decision on funding.

The following is a brief overview of studies conducted in each of Farming for the Future's nine research categories. A complete list of projects funded during the second mandate appears in the section "Research Program Project Summaries."

Cereals and Oilseeds

Cereal and oilseed production forms the foundation of Alberta's agriculture industry, and will undoubtedly play a central role in the farming sector for many years to come. In 1985, farm cash receipts from wheat sales reached an estimated $697 million, while canola production generated an estimated $338 million and barley an estimated $267 million. Combined sales of wheat, canola, barley, oats, rye and flaxseed accounted for approximately 35% percent of total farm cash receipts during the year.

To improve performance in this extremely important branch of primary agriculture, Farming for the Future supports a wide range of research projects in related areas. These studies are designed to enhance both quality and efficiency in cereal and oilseed cultivation, and to provide new production opportunities in this sector. Typical projects in 1985-86 centered on assessment of intensive management systems for barley and wheat, development of canola and wheat varieties suited to specific regions of the province, and evaluation of a new six-row, semi-dwarf barley cultivar.

In all, seven studies received a total of $654,392 through the Research Program in 1985-86. Eight projects are slated for support in 1986-87, with total funding of $691,500.

Crop Protection and Entomology

To maintain productivity, Alberta's farmers wage an ongoing battle against crop diseases, weeds and insect pests. To help producers in this fight, and to assist those who employ beneficial insects in their operations, Farming for the Future funds numerous studies in the areas of crop protection and entomology.

In 1985-86, 12 such studies were supported with grants totalling $427,090. These included an effort to develop chemical and biological controls for canola seedling blight, an evaluation of grasshopper insecticides applied in a bran mixture, and a study aimed at identifying chemical controls for weeds commonly occurring in alfalfa. A total of $225,845 has been allocated to finance six projects in 1986-87.

Forages

Forages in the form of tame hay, cereal silage, greenfeed and pasture generate an estimated $600 million annually for Alberta farmers, and play an important role in the province's livestock industry. In addition, certain forages may significantly improve soil fertility, and in recent years have assumed increasing importance as a means of controlling soil erosion.

Forage research focuses on the development of high-quality crops and better harvesting and storage methods.

Research in this commodity area is directed at increasing yields and improving harvesting and storage techniques. A total of $369,965 was awarded to 10 forage-related studies in 1985-86, and in 1986-87 eight projects will receive grants totalling $286,002.

Work in progress during the fiscal year included an evaluation of management techniques for grass-legume forages in the Peace River region, an examination of the effects of the Savory Grazing Method on native range, and an effort to develop recombinant DNA techniques for transferring useful genes into alfalfa.

Irrigation

The successful implementation of irrigation technology has transformed the landscape of southern Alberta, turning 1.1 million acres of dry plain into a fertile farming region. Today, this area supplies fully 12 percent of Alberta's total agricultural production, although it comprises only four percent of the province's cultivated land base.

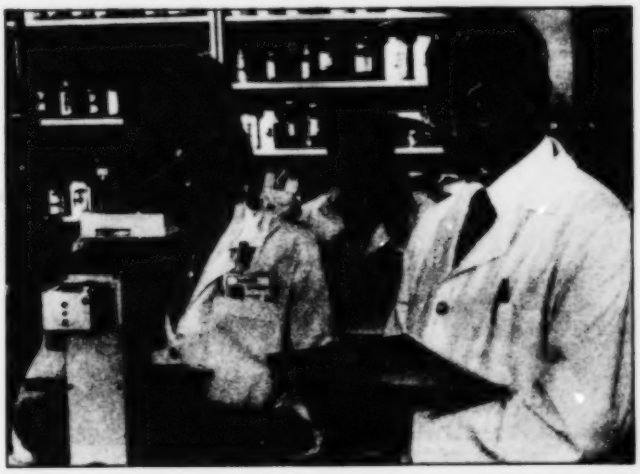
As irrigated acreage has continued to grow, Farming for the Future has promoted research aimed at improving water use efficiency and drainage, and reducing damage from saline seepage. Two such projects received a total of $215,800 through the Research Program during the year; these examined water quality criteria and the effects of irrigation system components on water conveyance efficiency.

Four irrigation-related studies will be conducted in 1986-87, at a total cost of $259,055. Research in this area is sometimes funded jointly with the Irrigation Council of Alberta.

Land Resources and Engineering

The Research Program funded 13 projects in the area of land resources and engineering in 1985-86, providing grants totalling $789,281. These projects were designed to develop the sound land management practices essential to the preservation of Alberta's agricultural land resource base.

Studies conducted during the fiscal year include a comparison of nitrogen sources for topdressing of winter wheat, an assessment of procedures for controlling dryland saline seeps, and a survey of soil erosion in east central Alberta. Thirteen projects in this program area have been awarded funding for 1986-87, for a total expenditure of $722,593.



Soil scientists are studying the effect on soil quality of tillage practices, fertilizer, and erosion control in order to enhance and protect our vital land base.

Non-Ruminants

Non-ruminant animals are a major source of revenue for Alberta's farming industry. In 1985, sales of hogs generated an estimated $253 million for producers in the province, and farm cash receipts from sales of poultry and eggs totalled an estimated $131 million. Recent advances in non-ruminant livestock production have enabled producers in this sector to increase both productivity and efficiency, and research promises to bring further gains in future.

An effective vaccine against hemorrhagic enteritis (mud fever) in turkeys was developed at the Veterinary Infectious Disease Organization in Saskatoon with Farming for the Future support.

In the non-ruminant program category, Farming for the Future supports studies in the areas of reproduction, management, disease control and feed utilization. In 1985-86, $424,178 was disbursed to fund 11 such projects. Typical efforts centered on the use of canola seed as a feed for laying hens, determination of the real digestibility of amino acids in protein supplements and cereal grains, and development of a serodiagnosis for mycoplasmal pneumonia in pigs. Seven projects will be conducted with a total of $348,415 in 1986-87.

Processing, Transportation, Marketing and Socio-Economics

The Agricultural Research Council has long recognized the importance of the social and economic dimensions of Alberta's agriculture industry, and of its growing secondary and tertiary production sectors. For this reason, Farming for the Future has extended its research support activities to the areas of processing, transportation, marketing and socio-economics, and has made these areas a funding priority in recent years.

In 1985-86, $576,705 was granted to support 18 projects designed to explore social and economic aspects of the farming community

and to generate production opportunities for food processors. Projects included an evaluation of debt financing, an examination of retirement and farm transfer trends in the province, and a comparison of lean meat content in Canadian and American primal beef cuts.

Seventeen projects will be carried out with grants totalling $651,900 in 1986-87.

Ruminants

Production of ruminant livestock has traditionally been a mainstay of Alberta's agriculture industry. In 1985, farm cash receipts from sales of cattle and calves reached an estimated $1.2 billion, while sheep and lamb production brought an estimated $7 million; cash receipts from dairy products reached an estimated $247 million the same year.

Funding allotted to research in this area reflects the importance of ruminant production to the agriculture sector and the province as a whole. During the year, $1,132,100 was awarded by Farming for the Future to support 26 projects aimed at improving efficiency and quality in ruminant livestock production; 24 such studies will receive a total of $1,062,800 in 1986-87.

Current efforts include an investigation of "nervous" coccidiosis in cattle, an attempt to improve the nutritive value of straw, and an analysis of the effects of a growth hormone on dairy cattle.

Special Crops

Cultivation of special crops helps diversify and stabilize the agricultural economy, and has become increasingly popular in Alberta in recent years. In 1985, farm cash receipts from sales of potatoes, sugar beets, vegetables, flowers and nursery trees totalled an estimated $114 million. Sales of other, more unusual crops — such as mustard and mushrooms — generated an additional $32 million in cash receipts during the year.

To help provide viable production alternatives for Alberta's farming community, Farming for the Future supported four special crop related projects in 1985-86, at a total cost of $233,556 (five projects were initially approved, but one study was cancelled as a result of conditions in the sugar beet industry). In 1986-87, $313,447 will be provided to support seven studies in this area.

Projects conducted during the year centered on field production of cut flowers for Alberta markets, improved molecular diagnosis of potato spindle tuber disease, and development of irrigated soybean and dryland safflower varieties.

ON-FARM DEMONSTRATION PROGRAM

To expedite the transfer of technology from researchers to producers, the On-Farm Demonstration Program supports projects which demonstrate the suitability of new production techniques in various regions of the province. Demonstrations are joint efforts by producers, scientists and Alberta Agriculture staff; they are designed not only to speed the adoption of agricultural innovations, but also to foster a closer working relationship between the farming and scientific communities and the Department of Agriculture.

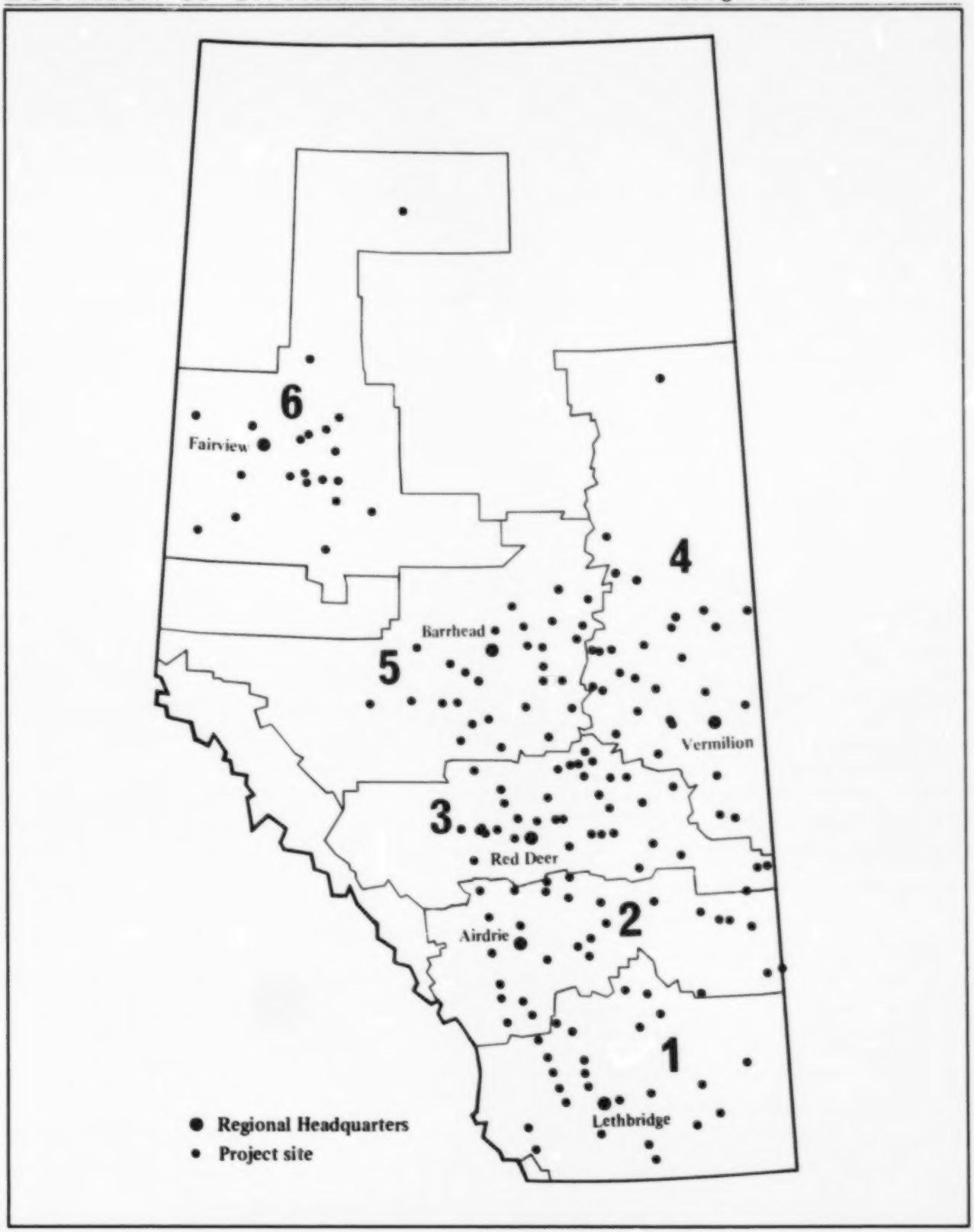
Since its inception in January 1982, the On-Farm Demonstration Program has proved a valuable addition to Farming for the Future's basic role as a vehicle for research support. Response from producers has been enthusiastic, and in 1985-86 117 projects (93 new and 24 extended from the previous year) received grants totalling $358,170. As a result of its excellent performance, the program has been allotted an operating budget of $600,000 for 1986-87.

Proposals for demonstration projects are considered throughout the year by one of six Regional Review Committees, which are made up of producers and Alberta Agriculture staff. Applications are evaluated on the basis of relevance to the region's agriculture sector, experience of the applicant, and the size, duration and cost of the proposed project. Once this evaluation is complete, a committee forwards its recommendations to the Agricultural Research Council for final approval.

The section "On-Farm Demonstration Program Project Summaries" provides a detailed list of projects funded by the On-Farm Demonstration Program during the second mandate.

Producer Zoltan Gergely of Coaldale, Alta., undertook an On-Farm Demonstration project in which sugar beets were transplanted, rather than seeded, into a field.

LOCATION OF ON-FARM DEMONSTRATION PROJECTS



RESEARCH PROGRAM PROJECT SUMMARIES

Project Title and Objective	Research Manager	Institution	Funding 1984-86	Funding 1986-87
CEREALS AND OILSEEDS				
Development of Management Practices to Improve Cereal and Oilseed Productivity in the Peace River Region • to develop management practices that will improve canola and cereal productivity and quality	R.I. Wolfe	Agriculture Canada — Beaverlodge	169,680	79,000
The Effects of Low Temperatures and Diurnal Fluctuations on the Germination and Emergence of Canola • to define the germination and emergence response of canola to low and diurnal temperature ranges	P.F. Mills	Agriculture Canada — Beaverlodge	61,406	31,000
Acceleration of Canola Variety Development for the Peace River and Southern Alberta Regions • to develop and evaluate superior, regionally adapted, high yielding, disease resistant, high nectar-producing canola varieties	R.K. Downey D.L. Woods S. Smoliak	Agriculture Canada — Saskatoon, Beaverlodge, Lethbridge	750,000	375,000
Physiological Screening for Cold Hardiness in Winter Wheat and Triticale Germplasm • to screen winter wheat and winter triticale germplasms for cold hardiness; to select gene combinations for incorporation into commercial varieties suitable for central Alberta conditions	F.M. Mederick T.H.H. Chen	Alberta Agriculture — Lacombe, and Alberta Research Council — Edmonton	50,085	34,500
Identification of Low Temperature Tolerant and Early Flowering Canola Genotypes • to develop varieties for central and northern Alberta which will establish uniform, early stands and mature early	Z.P. Kondra	University of Alberta — Edmonton	24,400	completed
Breeding Soft White Spring Wheats for Western Canada • to develop a variety with improved leaf disease (strip rust) and sprouting resistance	R.S. Sadasivaiah J.B. Thomas	Agriculture Canada — Lethbridge	137,400	73,400
Screening Winter Wheat for Resistance to Snow Mold Pathogens Under Controlled Conditions • to assess snow mold damage; to determine relative importance and distribution of snow mold pathogens in fall sown cereals and grasses	D.A. Gaudet	Agriculture Canada — Lethbridge	57,836	33,400
Genetic Studies on Yield-Protein Relationships in Common Wheats • to investigate relationship between yield and protein content; to develop breeding techniques which permit simultaneous improvement of these characteristics	S. Kibite	Agriculture Canada — Lacombe	32,417	in progress
Studies of Extreme Strong Straw Strength in Semi-Dwarf Six Row Barley • to compare straw strength, resistance to lodging, tolerance to fertility levels, and rooting system strength in a semi-dwarf barley and commonly-used lines	K.G. Briggs	University of Alberta — Edmonton	27,360	28,000
Intensive Management Systems for Barley and Wheat Production • to evaluate intensive cereal management systems using various fertilizers, plant growth regulators, herbicides and stand densities	D.C. Penney J.H. Helm	Alberta Agriculture — Edmonton, Lacombe		37,200
CROP PROTECTION AND ENTOMOLOGY				
Potassium Chloride as a Means of Reducing Root Rot in Barley • to evaluate benefits of applying chloride to reduce losses	J.T. Harapiak	Western Co-operative Fertilizers Ltd. — Calgary	36,620	in progress
Feasibility Study for Control of Root Maggots (*Delia* spp.) on Canola: Supplement • to provide information for devising a pest management strategy	G.E. Ball	University of Alberta — Edmonton	58,657	completed
Seedling Blight of Canola in Alberta • to identify and develop biological and chemical control measures	J.P. Tewari	University of Alberta — Edmonton	87,800	57,340
A Long-Term Study of the Influence of Environmental Variables on Herbicide Efficacy • to determine effects of environmental variables on herbicide performance	W.H. Vanden Born	University of Alberta — Edmonton	37,600	20,900
Life History and Phenology of the European Corn Borer in Southern Alberta • to devise management strategies through an examination of the corn borer	J.R. Spence	University of Alberta — Edmonton	23,334	in progress
Identification of Irrigation Practices that Reduce Black Point in Soft White Wheat • to determine effects of irrigation practices and weather on black point	R.L. Conner	Agriculture Canada — Lethbridge	28,775	16,920
Weed Control in Alfalfa for Seed Production • to identify chemical controls for Canada thistle, sow thistle and quack grass	J.R. Moyer	Agriculture Canada — Lethbridge	69,208	in progress
Use of Ethylene for Control of Germination of Dormant Weed Seeds in Alberta Soils • to evaluate use of ethylene and potassium nitrate to break dormancy	M.E. Spencer	University of Alberta — Edmonton	130,836	in progress

Project Title and Objective	Research Manager	Institution	Funding 1984-86	Funding 1986-87
Effects of Chlorsulfuron and DPX-T6376 on Succeeding Rotational Crops • to determine safe cropping intervals for alfalfa, lentils, potatoes, rapeseed and barley on different soil series, following a pesticide application	R. Esau	Alberta Agriculture – Brooks	13,230	completed
The Effect of Copper on Stem Melanosis of Park and Other Wheat Cultivars • to evaluate the role of copper in resistance to melanosis	L.J. Piening S. Malhi	Agriculture Canada – Lacombe	30,918	33,353
Analysis of Bee Repellent Residues in Honey • to develop techniques for measurement of repellent residues; to investigate methods for minimizing honey contamination by repellents	P. Sporns	University of Alberta – Edmonton	37,250	completed
Evaluation of Grasshopper Control with *Nosema locustae* and Insecticides on Bran Carrier • to evaluate chemical and biological grasshopper controls	D.L. Johnson J.E. Henry	Agriculture Canada – Lethbridge, and United States Dept. of Agriculture	46,574	77,060
Billion Drop Technology: Perennial Weed Control Studies • to identify, develop, and demonstrate efficient herbicide application techniques for effective weed control	R.B. Rogers A. Mitchell	Rogers Engineering Inc. – Saskatoon		20,272
FORAGES				
Management Systems for Grass-Legume Forage Crops in the Peace River Region • to evaluate productivity and efficiency of management systems	N.A. Fairey	Agriculture Canada – Beaverlodge	73,510	46,000
Soil Implant Inoculants for Alfalfa • to determine effectiveness of inoculants under temperature and moisture stress	W.A. Rice P.E. Olsen	Agriculture Canada – Beaverlodge	99,750	50,000
Maximization of *In vitro* Alfalfa Embryo Production and Development of Artificial Alfalfa Seed Systems • to optimize somatic embryo production for development of artificial seeds	T.H.H. Chen	Alberta Research Council – Edmonton	43,800	in progress
Improvement of Distribution of Digestible Dry Matter in Smooth and Meadow Bromegrass under Pasture Production • to improve pasture utilization by altering dry matter distribution; to evaluate smooth and meadow bromegrass in development of pasture crosses	V.S. Baron	Agriculture Canada – Lacombe	76,835	in progress
The Effects of Storage and Processing on Vitamin E Levels in Forages • to correlate vitamin E levels and time of cutting; to determine effects of field storage, temperature and exposure to air on vitamin E stability	P.J. Martin R. Westra	Norwest Feed Research Ltd. – Edmonton, and Westra-Dunen Associates, Inc. – Edmonton	25,000	completed
Annual Forage Crops (Southern Alberta) • to identify annual forages and agronomic practices which optimize pasture	R.G. Gaudiel	Alberta Agriculture – Brooks	128,500	in progress
Control of Field-Drying Hay • to compare single stem and raked swath and windrow drying rates for commonly used hay species; to assess effect of raking schedules on drying rates	L.P. Milligan	University of Alberta – Edmonton	30,000	in progress
Effect of Grazing on Forage and Beef Production from Rough Fescue Rangeland in Central Alberta • to determine long-term effects of grazing treatments; to develop a grazing system to maximize forage and cattle production	A.W. Bailey	University of Alberta – Edmonton	50,000	44,000
Germination and Establishment of Pasture Grass Species • to study germination and establishment of meadow bromegrass, meadow foxtail and orchardgrass; to investigate osmoconditioning ("priming") to improve germination and establishment	J.R. King	University of Alberta – Edmonton	26,100	32,250
Assessment of the Role of Abscisic Acid in Alfalfa Fall Dormancy and Regrowth After Cutting • to identify role of abscisic acid in fall dormancy and regrowth after cutting, to aid development of a rapid screening method for selecting high yielding, winter hardy alfalfa genotypes	S.C. Chen	Alberta Research Council – Edmonton	26,000	in progress
Increasing Alfalfa Production During the Establishment Year • to determine effects of short and long lived alfalfa blends on yields	J.S. McKenzie	Agriculture Canada – Beaverlodge	23,270	29,062
Methods of Harvesting and Utilizing Mixed Maturity Barley • to identify techniques for optimizing economic efficiency; to measure nutritive value	B.E. Thorlakson	Thorlakson Feedyards Ltd. – Airdrie	30,000	in progress
The Effect of the Savory Grazing Method on Plant Succession in Albertan Native Range • to determine impact of Savory Grazing Method on seed production and species composition	J.R. King	University of Alberta – Edmonton		17,590
Development of Recombinant DNA Techniques for Gene Transfer into Alfalfa • to develop a gene transfer system for insertion of useful genes into alfalfa	R. Irving	Alberta Research Council – Edmonton		35,100
Production of *Rhizobium meliloti* Inoculants for Alfalfa by Process-Controlled Fermentation • to identify efficient and economical techniques for production of inoculants	W.T. Leps	Alberta Research Council – Edmonton		32,000

Project Title and Objective	Research Manager	Institution	Funding 1984-86	Funding 1986-87
IRRIGATION				
Subsurface Drainage Depth and Spacing Criteria for Medium to Fine Textured Soils Within Irrigated Alberta • to evaluate standard drain spacing formulae; to determine effect of changes in drain depth on soil reclamation	D.B. Harker T. Sommerfeldt	Alberta Agriculture and Agriculture Canada — Lethbridge	57,120	completed
Evaluation of Low Volume Wind Turbines for Pumping Water • to evaluate use of wind turbines on drainage and irrigation projects	B.A. Paterson	Alberta Agriculture — Lethbridge	30,000	in progress
Adaptation of Downstream Control to a Vertically Hinged Automatic Check Structure • to automate downstream control structures of small irrigation laterals	K.R. Craig	Underwood McLellan Ltd. — Lethbridge	63,500	completed
Development of Agricultural Subsurface Drainage Design Standards for Alberta • to obtain drain tile and spacing standards by determining "critical" water depth, recession rate and other parameters	H.S.A. Vander Pluym	Alberta Agriculture — Lethbridge	58,700	completed
Evaluation of Effectiveness of PVC Cutoff Curtains for Seepage Control Adjacent to Irrigation Canals • to evaluate performance of curtains installed by various methods; to develop guidelines for curtain use and improved installation techniques	D.J. Convery	Hardy Associates (1978) Ltd. — Calgary	87,600	in progress
Downstream Automatic Control of a Series of Checks on an Irrigation Lateral • to develop and evaluate an automated irrigation lateral with downstream control of all checkgates	T.G. Ayers S. Jonas	Underwood McLellan Ltd. and Alberta Agriculture — Lethbridge	128,200	45,455
The Economic Impacts of Alternative Locations for Adding Acres to the Irrigation Districts' Rolls • to develop methods for determining quantity and location of lands to be added to irrigation district rolls	B.C. Palmer D. Russell	UMA Engineering Ltd. — Lethbridge		90,880
Establishment of Water Quality Criteria for Irrigation in Southern Alberta • to establish quality criteria by examining field projects and quality records	D.N. Graveland	Monenco Consultants Ltd. — Lethbridge		21,890
Water Conveyance Efficiency Study • to determine efficiency of a water conveyance system; to determine influence of soil type, canal lining materials, groundwater levels, and surface evaporation on water losses	M.V. Thompson E.D. Climenhaga S. Jonas	Nanuk Engineering — Cochrane, Associated Engineering and Alberta Agriculture — Lethbridge		100,830
LAND RESOURCES AND ENGINEERING				
Development of Fertilizer Recommendations for Irrigated Grains and Oilseed Crops in Alberta • to develop nitrogen and phosphorus response curves for irrigated soft white spring wheat, durum wheat, canola, flax, hard red spring wheat and barley	R.H. McKenzie J.M. Carefoot	Alberta Agriculture and Agriculture Canada — Lethbridge	97,801	42,200
Conservation Tillage Practices for Cereal and Oilseed Crops in the Lower Peace River Region • to maintain or increase yields, conserve soil moisture and reduce production costs through use of conservation tillage on various soil types	G.W. Clayton	Agriculture Canada — Fort Vermilion	113,050	40,675
Quantification of Soil Erosion in East-Central Alberta • to determine impact of soil erosion on soil productivity	R.W. Howitt	Alberta Research Council — Edmonton	64,050	37,400
Increasing Efficiency of Soil and Fall-Applied Fertilizer Nitrogen Under Various Tillage Systems • to determine over-winter losses of mineral nitrogen from fall-applied fertilizers and relative efficiency of fall versus spring application	S.S. Malhi	Agriculture Canada — Lacombe	76,139	in progress
Feasibility of Zero Tillage in Central Alberta • to establish feasibility through economic analysis of conventional, minimum and zero tillage systems	K.N. Harker S.S. Malhi	Agriculture Canada — Lacombe	103,100	in progress
A Study of Water Erosion in the Peace River Region • to measure annual runoff, sediment yield, soil loss and erodibility under different management practices	D.S. Chanasyk	University of Alberta — Edmonton	149,800	48,900
Economic Appraisal of On-Farm Drainage • to develop a method for assessing economic feasibility of drainage designs	L.P. Apedaile	University of Alberta — Edmonton	15,900	in progress
Improving the Efficiency of Soil Nitrogen and Fertilizer Nitrogen for Different Tillage-Straw Systems • to determine long-term nitrogen fertilizer needs under different tillage and straw handling systems	M. Nyborg	University of Alberta — Edmonton	127,980	65,486
Nutrient Supply and Budgets in Luvisolic Soils: Use of Manure and Role of Organisms • to determine the impact of N_2 fixation and denitrification; to evaluate a technique for measuring availability of manure nitrogen in luvisolic soils	J.A. Robertson N.G. Juma	University of Alberta — Edmonton	175,865	88,880
The Effects of Post-Harvest Cultivation Practices on Springtime Soil Moisture • to quantify effects of cultivation practices on soil moisture gain from snowmelt under dryland conditions in central Alberta	D.S. Chanasyk	University of Alberta — Edmonton	10,900	completed

Project Title and Objective	Research Manager	Institution	Funding 1984-86	Funding 1986-87
A Study of Heat and Moisture Loads and Air Quality in Commercial Poultry Breeding Facilities • to measure heat and moisture loads, air quality and atmospheric contaminants; to determine the influence of management and/or housing practices on thermal characteristics and air quality	J.B. McQuitty	University of Alberta — Edmonton	48,870	completed
Increasing Fertilizer Nitrogen Efficiency Through Fertigation • to compare effectiveness of nitrogen application through irrigation water ("fertigation") with soil incorporation of nitrogen	J.M. Carefoot J.B. Bole	Agriculture Canada — Lethbridge, Vancouver	56,480	33,550
Evaluation and Development of Furrow Openers for Seed and Fertilizer Placement Under No-Till Conditions • to evaluate drills and furrow opener configurations	C.W. Lindwall	Agriculture Canada — Lethbridge	168,700	117,680
The Effects of Soil Buffering Capacity on Phosphorus Fertilizer Recommendations • to calibrate optimum phosphorus levels for a range of soil buffering capacities	J. Ashworth	Norwest Soil Research Ltd. — Edmonton	15,550	completed
An Investigation of Hydrogeological Processes Influencing Dryland Salinity • to identify problem recharge areas and to investigate the dynamics of water and salt movement, to provide information for devising control measures	R. Stein	Alberta Research Council — Edmonton	126,968	completed
Interference with Phosphate Uptake from Multi-Nutrient Deep Bands • to determine barley and canola sensitivity to phosphate uptake from bands	J.T. Harapiak	Western Co-operative Fertilizers Ltd. — Calgary	7,650	in progress
Determination of Dominant Recharge Areas for Saline Seeps and Assessment of Saline Seep Control Measures • to assess effectiveness of recommended control procedures	M.J. Hendry H.S.A. Vander Pluym D.B. Harker	Alberta Agriculture — Lethbridge	101,644	83,355
Comparison of N Sources for Topdressing of Winter Wheat in Southern Alberta • to determine the effects of topdressing with nitrogen solution fertilizers	T.L. Roberts	Alberta Soil and Feed Analysis Ltd. — Lethbridge		27,124
Field Mapping and Location Method Using Radio Signal Triangulation • to develop and evaluate an accurate radio-signal method for locating tractors and implements in fields	J. Baker	Baker Engineering Enterprises Ltd. — Edmonton		44,137
Physical-Chemical Effects of Nitrogen Fertilizers on Soils • to determine the extent and nature of possibly detrimental chemical processes and physical conditions associated with long-term use of nitrogen	M.J. Dudas S. Pawluk	University of Alberta — Edmonton		24,670
Animal Health Monitoring and Electronic Identification Using Radiotelemetry Techniques • to design and test an electronic identification and temperature-measuring system for multiple livestock monitoring	J.E. Maloney P. Harvie B. Hubbard	SCICON — Calgary, and 323 871 Alberta Ltd. — Priddis		68,536
NON-RUMINANT LIVESTOCK				
Development of a Serodiagnosis for Porcine Mycoplasmal Pneumonia • to develop a diagnostic test for enzootic porcine pneumonia	G.W. Stemke	University of Alberta — Edmonton	95,869	41,525
Nutritional and Biochemical Studies in Horses • to examine long-term effects of overfeeding on bone development, exercise physiology and locomotion of growing horses	N.F. Cymbaluk	Western College of Veterinary Medicine — Saskatoon	72,024	in progress
Prevention and Control of *Haemophilus pleuropneumoniae* in Swine • to develop a safe and effective vaccine; to evaluate Tialumin for treatment	P.J. Willson A.D. Osborne	Veterinary Infectious Disease Organization and Western College of Veterinary Medicine — Saskatoon	103,254	52,600
Cell Culture System for Production of a Vaccine for Hemorrhagic Enteritis in Turkeys and Splenomegaly in Chickens • to produce enteritis vaccine for field testing turkeys and chickens	J. van den Hurk	Veterinary Infectious Disease Organization — Saskatoon	108,129	68,690
A Comparison of Fertility of Frozen Semen, Fresh Semen and Natural Service in Swine Herds • to compare farrowing rate and litter size of sows inseminated by various methods and at various stages of estrus	E.G. Maynard	Alberta Agriculture — Edmonton	51,500	in progress
The Mobile Nylon Bag Technique for Determining the Nutritive Value in Feedstuffs for Pigs • to develop a technique for accurate and rapid measurement of protein digestibility and energy and amino acid availability in feedstuffs	W.C. Sauer	University of Alberta — Edmonton	50,900	in progress
Blood Chemistry Behavior of Chickens Exhibiting the Sudden Death Syndrome • to determine differences in blood chemistry and body temperatures between sudden death syndrome (SDS) and control chickens, and to identify behavior patterns characteristic of SDS chickens	J.R. Hunt	Agriculture Canada — Agassiz	47,300	in progress
Utilization of Canola Seed by Laying Hens • to compare canola seed with corn, wheat, and barley	A. Shires	University of Alberta — Edmonton	28,000	in progress
Amino Acid Nutrition in Swine • to improve swine diet formulations by accounting for available amino acids in dietary ingredients, and by maximizing use of synthetic amino acids	W.C. Sauer	University of Alberta — Edmonton	32,400	in progress

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Protein Metabolism During Fever and Infection in Domestic Livestock • to analyze muscle tissue loss during infection; to study effectiveness of current veterinary drugs in reducing tissue loss	V.E. Baracos	University of Alberta — Edmonton	59,788	53,100
A Study of Reproductive Performance and Hormonal Status of Sows After Weaning • to characterize endocrine mechanisms affecting post-weaning reproductive efficiency of sows; to determine effects of hormonal status on conception, ovulation, and embryo survival rates	F.X. Aherne A. Sather	University of Alberta — Edmonton, and Agriculture Canada — Lacombe	16,450	in progress
The Effects of Weight and Fat Loss During Lactation on Sow Productivity and Hormone Status • to study the effects of feed intake level during sow lactation on endocrine status, weight loss and milk production of sows, and growth rate of piglets	F.X. Aherne	University of Alberta — Edmonton	42,985	in progress
Interaction Between Feed Intake During Lactation and Pregnancy and Sow Reproductive Performance • to determine the influence of high and low levels of feed intake during lactation and early pregnancy	F.X. Aherne	University of Alberta — Edmonton		70,900
Determination of Amino Acid Digestibilities with the ^{15}N-Isotope Dilution Technique in Feedstuffs for Pigs • to determine real digestibility of amino acids in protein supplements and cereal grains	W.C. Sauer	University of Alberta — Edmonton		40,290
Therapy with Pregnant Mare's Serum Gonadotrophin (PMSG) to Control Ovulation Rate and Return to Estrus in Sows • to examine the effect of PMSG administration to sows at weaning; to evaluate surgical embryo recovery as a research technique	S.W. Bauck R. Davis	Central Swine Veterinary Services — Beiseker, and Davis-Rairdan Veterinary Services Ltd. — Crossfield		21,310
PROCESSING, TRANSPORTATION, MARKETING AND SOCIO-ECONOMICS				
Blending of Low Erucic Acid Rapeseed Oil for Utilization as a Dietary Fat • to assess metabolic changes produced in laboratory animals by regular intake of canola oil	M.T. Clandinin	University of Toronto — Toronto	58,930	completed
The Impact of Trade Barriers on the Canadian Canola Crushing Industry • to assess economic impact of Japanese edible oil tariffs	C.A. Carter	University of Manitoba — Winnipeg	25,500	in progress
Quality Evaluation of Canola Oils and Canola Oil Products • to examine storage and heat stability of antioxidant-treated canola products	Z.J. Hawrysh	University of Alberta — Edmonton	62,875	20,000
An Analysis of the Farm Production Unit with Recommendations for Improving Net Farm Income • to describe contributions of farm production unit members to the farm operation; to identify direct and indirect benefits of these contributions to net farm income	N. Keating	University of Alberta — Edmonton	32,640	completed
Implications of *Salmonella* Contamination of Poultry Meat for Poultry Producers • to study hazards posed by *Salmonella;* to evaluate production and processing controls to reduce *Salmonella* in poultry meat	M.E. Stiles	University of Alberta — Edmonton	70,500	in progress
Effects of Efficient Procedures and New Technologies on Beef Quality • to evaluate effects of procedures and technologies on eating quality and processing characteristics of beef	Z.J. Hawrysh	University of Alberta — Edmonton	60,000	in progress
Effects of Electrical Stimulation on Calcium Activated Neutral Protease and Z-Disc Actin in Beef • to explore effects of electrical stimulation on protease to enhance beef quality	F.H. Wolfe	University of Alberta — Edmonton	137,000	69,000
Analysis of Terramycin (Oxytetracycline) in Honey • to establish procedures for measuring terramycin in honey	P. Sporns L. Roth	University of Alberta and Alberta Agriculture — Edmonton	33,200	completed
The Beef Price Cycle and Responses by Western Cow-Calf Producers to Changing Prices • to estimate responses by cow-calf producers to changing calf and feeder prices	J.D. Graham	University of British Columbia — Vancouver	12,984	completed
Farm Management Field Laboratory (Phase 2) • to study capital structure and earning performance of commercial farms	M.L. Lerohl	University of Alberta — Edmonton	59,190	completed
Engineering Development and Economic Analysis of the Dehydrocooling Process • to develop and assess a method for freezing and drying fresh fruits and vegetables	M. Le Maguer	University of Alberta — Edmonton	125,566	36,000
Economic Assessment of Alternative Brush Control Methods for Development and Maintenance of Alberta Grazing Lands • to economically assess methods analyzed in a previous project	M.L. Lerohl	University of Alberta — Edmonton	26,325	in progress
Limiting Pesticide Exposure Through Textile Cleaning Procedures and Selection of Clothing • to devise laundry practices for removing pesticide residues	N. Kerr K. Rigakis E.M. Crown B. Eggertson	University of Alberta and Alberta Agriculture — Edmonton	83,812	41,000

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Evaluating Debt Contracts for Alberta Farmers: A Sensitivity Analysis • to examine ability of long-term farm debt instruments to reduce risk	R.G. Aukes	University of Manitoba — Winnipeg	23.670	in progress
An Integrated Bean Breeding, Bean Marketing Study • to identify and quantify export markets for dry beans; to integrate these findings into a bean breeding program	J.H. Latham G.A. Kemp	Alberta Agriculture — Edmonton, and Agriculture Canada — Lethbridge	12.480	in progress
Analysis of Family Consumption Expenditures Related to Selected Farm Business Physical and Financial Variables • to identify consumption expenditures, to determine factors influencing these expenditures, and to assess their effect on farm business	T.A. Petersen J. Wilson	University of Alberta and Alberta Agriculture — Edmonton	30.800	25.000
Effect of Changing Technology on the Structure of Family Grain Farms in Alberta • to examine the effect of changes in grain production technology on structure and economic prospects of family grain farms	L.P. Apedaile	University of Alberta — Edmonton	42.495	in progress
Performance of the Rapeseed Futures Market • to examine how price change risk is reduced by hedging strategies; to evaluate relationships between rapeseed futures prices, soybean futures prices, and cash prices for canola	M.M. Veeman	University of Alberta — Edmonton	23.000	18.000
An Economic Evaluation of Tillage Management Systems in the Dark Brown Soil Zone • to assess economics of various tillage practices	L. Bauer	University of Alberta — Edmonton	57.630	in progress
Export Markets for Western Canada Wheat: Trends and Market Mix • to evaluate international market prospects for non-traditional wheats	M.M. Veeman T.S. Veeman	University of Alberta — Edmonton	29.750	10.000
Productivity Growth and Profitability in the Prairie Grains Sector • to measure and analyze agricultural productivity at the sectoral level	T.S. Veeman	University of Alberta — Edmonton	29.850	26.000
Incorporating Barley, Interest Rate and Exchange Rate Futures Contracts into the Hedging Program of an Alberta Beef Producer • to examine potential of an extended hedging program to enhance feedlot cash flow; to find ways of reducing producer debt loads	W.A. Kerr	University of Calgary — Calgary	2.750	in progress
Retirement and Farm Transfer • to analyze retirement and estate planning data to establish trends in disposition of farms	N. Keating	University of Alberta — Edmonton	40.000	in progress
Study of Glucose Oxidase and Its Use in Preventing Non-Enzymatic Browning in Potato Products • to examine use of glucose oxidase enzyme to prevent or minimize browning; to develop and test applications	B. Ooraikul M. Palcic	University of Alberta — Edmonton		35.000
Evaluation of the Effects of Non-Meat Ingredients on Functional Properties of Meat Emulsions • to examine functional properties and least-cost formulations of meat emulsion products	F.H. Wolfe B. Ballantyne	University of Alberta and Gainers Inc. — Edmonton		16.000
Macro-Economic Influences on Alberta Farmland Values • to investigate relative impacts of measures of farming returns and monetary variables on farmland values; to assess impact of national monetary policy on farmland values over past two decades	M.M. Veeman T.S. Veeman	University of Alberta — Edmonton		21.000
Development and Testing of Prototype Equipment for the Manufacture of Stuffed Potatoes • to design, construct and test equipment for production of an artificial 'baked' potato shell; to evaluate consumer acceptance	J.K. Iwabuchi	I & S Produce Ltd. — Edmonton		127.000
Farinaceous Properties of Alberta Cereals and Pulses Subjected to Dry Extrusion • to screen cereal and pulse varieties to determine farinaceous properties and optimum processing conditions	P. Bibby D. Hadziyev	UFL Foods Ltd. and University of Alberta — Edmonton		98.000
The Impact of Grain Price Pooling on Alberta Farmer Returns and Prairie Transport Patterns • to investigate the nature of price pooling in the western grain industry and its distributional consequences by province	M.L. Lerohl	University of Alberta — Edmonton		22.900
Yield Differences Between U.S. and Canadian Beef Grades • to investigate differences in lean content of primal cuts	R.J. Tchir S.D.M. Jones	Alberta Agriculture — Edmonton, and Agriculture Canada — Lacombe		20.000
The End Use of Canadian Wheat and Its Relationship to the Grading System • to determine relationship between quality factors used in grading and those desired by importers; to assess relationship between quality factors and price	C.A. Carter W. Bushuk A. Wilson	University of Manitoba — Winnipeg		35.000
Economic Value of Research, Extension and Outlook Information to Farmers Facing Different Financial Pressures • to modify and test a dryland crop computer-simulation model	K.K. Klein	Klein Economic Consulting Ltd. — Lethbridge		32.000
RUMINANTS				
Determination of the Efficacy of Methods Used to Fertility Test Beef Bulls • to establish accuracy of selection criteria under range conditions	G.H. Coulter	Agriculture Canada — Lethbridge	101.300	in progress

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Pathogenesis of "Nervous" Coccidiosis of Cattle • to determine cause, treatment and prevention of "nervous" coccidiosis	J.E.C. Bellamy	Western College of Veterinary Medicine — Saskatoon	30,000	completed
Studies of the Endocrinology and Seasonality of Ovulation and Estrus in the Ewe • to investigate role of progesterone and daylength patterns in controlling seasonality in ewes	N.C. Rawlings	Western College of Veterinary Medicine — Saskatoon	57,000	in progress
Ralgro Effects on Production Traits, Carcass Yield and Meat Quality of Young Bulls • to determine whether Ralgro treatment reduces aggression, sexual interaction, and the incidence of dark-cutting beef	J.A. Newman	Agriculture Canada — Lacombe	35,000	completed
Effects of Barley Bulk Density and Processing Method on Feedlot Performance of Finishing Beef • to compare average daily gain, average daily dry matter intake and feed consumed per unit gain for yearling steers fed different finishing diets; to develop a price relationship between bushel weight and feeding value	R.E. Grimson	Lakeside Research — Brooks	38,000	completed
Bovine Respiratory Disease in Alberta Feedlots • to assess managerial and environmental circumstances which affect risk of respiratory disease in feeder cattle	T.L. Church S.D. Acres S.H. Wilson	Alberta Agriculture — Edmonton, and Veterinary Infectious Disease Organization — Saskatoon	215,000	50,000
Bovine Respiratory Disease: Virus-Bacterial Interactions • to develop improved vaccines against shipping fever in cattle	L.A. Babiuk	Western College of Veterinary Medicine — Saskatoon	130,000	66,000
Bovine Enteric Viruses: Use of Monoclonal Antibodies to Identify Neutralizing Antigens • to test feasibility of using monoclonal antibodies to protect calves from viral agents; to characterize relevant viral antigens	L.A. Babiuk	Western College of Veterinary Medicine — Saskatoon	70,000	42,000
Effect of Nutrients on Reproductive Function • to explore interaction between specific nutrients and reproduction in cattle	J.G. Manns	Western College of Veterinary Medicine — Saskatoon	115,700	59,000
Field Testing of an *E. coli*-Rotavirus-Coronavirus Vaccine for Calf Scours • to field test for safety and efficacy an *E. coli*-rota-coronavirus vaccine	S.D. Acres	Veterinary Infectious Disease Organization — Saskatoon	71,000	in progress
Identification and Purification of Protective *Pasteurella haemolytica* Antigens for Use as a Shipping Fever Vaccine • to identify components of *P. haemolytica* extracts which protect calves against pneumonic pasteurellosis	T.J.G. Raybould	Veterinary Infectious Disease Organization — Saskatoon	62,000	completed
Mechanism Mediating Ruminal Stasis in Ruminal Lactic Acidosis (Grain Overload) • to reveal mechanisms mediating loss of forestomach motility, so that an effective treatment for maintaining motility can be developed	E.C. Crichlow	Western College of Veterinary Medicine — Saskatoon	47,000	in progress
Investigation of Depression and Death in Scouring Calves Caused by Acidosis: Pathogenesis and Treatment • to examine pathogenesis and treatment of acidosis to improve therapy for scouring calves one to six weeks old	J.M. Naylor	Western College of Veterinary Medicine — Saskatoon	56,000	in progress
Evaluation of New Protein Systems for Dairy Cows • to test validity and commercial application of new systems	J.J. Kennelly	University of Alberta — Edmonton	129,000	in progress
Efficiency of Utilization of Forage Energy • to determine why acetate is poorly utilized for energy gain when a roughage ration is fed; to examine low efficiencies of roughage use	G.W. Mathison	University of Alberta — Edmonton	70,000	in progress
Field Testing the University of Alberta Beef Synthetic Bulls • to field test synthetic bulls developed as a sire herd; to produce crossbred females for use as a maternal breed type for commercial beef production	M.H. Makarechian	University of Alberta — Edmonton	10,000	completed
Livestock Growth and Meat Production • to evaluate the effects of pre- and post-weaning growth parameters on reproductive performance of heifers; to develop an index based on body weight and gain; to find optimum index range for reproductive efficiency	M.A. Price	University of Alberta — Edmonton	55,000	completed
Foraging Efficiency of Wapiti • to develop criteria for selecting an appropriate land base for wapiti farming; to develop appropriate methods for range improvement and seasonal supplementary feeding	R.J. Hudson	University of Alberta — Edmonton	27,000	completed
Sulphur Dioxide Preservation of Damp Feed Grain • to ascertain need for inclusion of excretable cation with sulphur dioxide-treated grain to maximize feed utilization; to determine feeding value and feasibility of sulphur dioxide-treated high moisture grain stored in plastic	L.P. Milligan	University of Alberta — Edmonton	29,000	in progress
Rumen Particle Size Reduction and Movement • to determine importance of chewing and fermentation in accomplishing particle size reduction in rumen digesta	L.P. Milligan	University of Alberta — Edmonton	73,000	in progress

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Nuclear Magnetic Resonance Examination of Forages • to define and refine a rapid, reliable and simple method of analyzing forages	L.P. Milligan R.M. Elofson R.D. Weisenburger	University of Alberta and Alberta Agriculture — Edmonton	81.000	in progress
Regulation of Skeletal Muscle Protein Growth in Cattle • to characterize factors regulating protein turnover in farm animals; to measure their effects on skeletal muscle protein synthesis and degradation, and to explain the mechanisms involved	J.R. Thompson R. Christopherson	University of Alberta — Edmonton	109.500	56.000
Nutrient Effects on Energy Metabolism, Appetite and Cold Tolerance • to determine the effects of manipulating nutrient intake on the appetite, energy expenditure and cold tolerance of pigs and calves in winter	R.J. Christopherson	University of Alberta — Edmonton	53.000	30.000
Cold Resistance in Cattle • to determine the effect of winter climate on Alberta's cattle industry; to recommend selection, feeding and management practices	R.J. Christopherson	University of Alberta — Edmonton	77.000	in progress
Influence of Temperature on Protein and Amino Acid Digestion in Ruminants • to determine effect of a cold environment on net uptake of amino acids	R.J. Christopherson	University of Alberta — Edmonton	63.500	34.000
Microbial Digestion of Straw Chemically Treated and Supplemented to Improve its Nutrient Yield for Ruminants • to develop chemical pretreatments and supplementation methods to enhance digestion of barley straw by rumen bacteria	K.-J. Cheng J.W. Costerton	Agriculture Canada — Lethbridge, and University of Calgary — Calgary	87.000	54.000
Effects of Prebreeding Exposure to Bulls on Reproductive Performance of Beef Heifers • to examine effects of presence of epididymectomized bulls on calving date and reproduction rate of heifers	M.H. Makarechian	University of Alberta — Edmonton	10.000	completed
Factors Influencing Reproductive Efficiency of Beef Cattle • to examine relationships between testes size, libido score and semen quality and quantity, and their effects on natural service fertility of bulls; to investigate factors affecting testicular development	M.H. Makarechian B.D. Callaghan	University of Alberta and Alberta Agriculture — Edmonton	15.000	completed
Effects of Early Weaning on Post-Weaning Performance of the Calf and Dam • to study effects of weaning date and breeding group on post-weaning performance	M.H. Makarechian	University of Alberta — Edmonton	25.000	in progress
Economic Analysis of the Impact of Delayed Breeding of Dairy Cows on Milk Production and Herd Health • to study influence of delayed rebreeding on milk production, productive life, and economic returns to producers	J.J. Kennelly	University of Alberta — Edmonton	55.000	completed
Effects of Dietary Protein and Sulfur Supplements and Hormonal Implants on Growth Responses of Beef Steers • to evaluate effects of protein and sulfur supplementation and growth implants on feedlot cattle	R.E. Grimson	Lakeside Research — Brooks	37.500	in progress
Lamb Quality and Cutability Assessment in Relation to Carcass Grades and Processing and Packaging Systems • to develop improved carcass grade standards for lamb; to assess palatability and consumer acceptabiliy of various lamb cuts	L.E. Jeremiah S.D.M. Jones	Agriculture Canada — Lacombe	64.000	96.000
Nutrition and Management of Wapiti • to evaluate the effects of winter feeding and forced weaning	R.J. Hudson	University of Alberta — Edmonton	40.000	29.000
Effect of B-Glucans in Barley on Digestion and Metabolism in Ruminants • to examine reaction of rumen and intestines to beta-glucans in barley	G.W. Mathison	University of Alberta — Edmonton	20.800	28.000
Effect of Growth Hormone and Frequency of Feeding on Milk Production and Milk Composition in Dairy Cows • to determine influence of growth hormones, frequency of feeding, and administration of glucagon on milk yields and on biological efficiency of milk production	J.J. Kennelly	University of Alberta — Edmonton	80.000	in progress
Protein and Energy Nutrition of Dairy Calves • to examine nutrient requirements, especially for protein and energy	W.C. Sauer M.H. Makarechian	University of Alberta — Edmonton	28.000	32.000
The Influence of Pre- and Postweaning Growth Rate on the Reproductive Performance of Beef Heifers • to evaluate effects of pre- and post-weaning body weight and weight gain on reproductive performance	M.A. Price	University of Alberta — Edmonton	36.000	37.000
Manipulation of Hormones in Sheep and Cattle to Improve Their Growth Rates • to verify that growth rate and feed efficiency can be increased by inducing lambs to produce antibodies against their own somatostatin; to attempt similar experiments with calves	G.J. Mears	Agriculture Canada — Lethbridge	42.000	42.000
Improving the Nutritive Value of Straw • to evaluate chemical and microbiological methods for increasing nutritive value of straw for ruminants	G.W. Mathison	University of Alberta — Edmonton		17.800
Effect of Silage Fermentation Enhancers on the Fermentation Characteristics of Corn and Barley Silage and on the Feeding Value of Barley Silage • to compare fermentation properties of silage enhancers and performance of beef cattle fed silages treated with these products	R.E. Grimson	Lakeside Research — Brooks		20.000

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Factors Influencing the Efficiency of Protein (Amino Acids) and Energy Utilization by Dairy Cows • to determine levels of rumen degradable protein in Alberta forages; to evaluate dairy cattle response to supplementation with protected amino acids	J.J. Kennelly	University of Alberta — Edmonton		65,000
Production of Large Numbers of Genetically Identical Calves (Clones) by Nuclear Transplantation • to produce unlimited numbers of clones of specific calves	B.F. Shea	Alberta Livestock Transplants Ltd. — Calgary		85,000
Investigation of the Best Treatment for Scouring Calves • to determine effects of withholding milk, providing electrolytes, and administering antibiotics	J.M. Naylor L. Petrie	Western College of Veterinary Medicine — Saskatoon		18,000
Growth Hormone for Dairy Cattle — Mode of Action and Effect on Milk Production and Reproductive Performance • to determine effect of growth hormone on milk yield, biological efficiency of milk production, reproductive performance, and productive life	J.J. Kennelly	University of Alberta — Edmonton		80,000
Development of Assays to Determine the Role of *P. haemolytica* Leukotoxin in Shipping Fever Pneumonia • to develop rapid methods to measure biological activity of *Pasteurella haemolytica* leukotoxin	M.J.P. Lawman	Veterinary Infectious Disease Organization — Saskatoon		45,000
Energetic Efficiencies of Ruminants • to study increases in lean body mass occurring when cattle are given beta-adrenergic antagonists; to examine energetic efficiency of cattle	G.W. Mathison	University of Alberta — Edmonton		28,000
Within and Between Breed Variation in Cold Hardiness of Cattle • to determine individual and breed differences in cold hardiness of neonatal calves; to develop a rapid screening system for cold hardiness	B.A. Young	University of Alberta — Edmonton		38,000
Efficiency Models in Cow-Calf Systems • to estimate production efficiency of different cow-calf systems; to establish relationships between efficiency and maturity	R.T. Berg L. Goonewardene	University of Alberta — Edmonton		11,000
SPECIAL CROPS				
New Sensitive Assays Utilizing Specific Monoclonal Antibodies for Testing Potato Virus and Bacterial Diseases • to produce antibodies specific to ring rot bacteria and potato viruses; to devise antibody mixtures for simultaneous detection of numerous disease agents	S.H. De Boer	Agriculture Canada — Vancouver	88,000	60,800
Development of Sugarbeet Handling Procedures that Reduce Sugar Losses During Sugarbeet Harvest and Storage • to determine the effect of using a truck filler on beet weight and sugar loss; to determine relationship between root water status and beet damage	P. Bergen W.F. Boras	Alberta Sugar Company — Taber, and Alberta Sugar Beet Growers Marketing Board — Lethbridge	24,100	completed
Rooting of *In vitro*-Produced Shoots of Saskatoon (*Amelanchier alnifolia*) • to produce high quality roots on saskatoon shoots produced *in vitro*	R.E. Harris	Roal Propagating Laboratory — Victoria	25,680	completed
Field Production of Cut Flowers for Alberta Markets • to assess the possibility of replacing imported flowers with Alberta products	B.J. Godwin	Olds College — Olds	9,900	completed
The Influence of Physiological Age of Seed Tubers on the Yield of Alberta Potatoes • to determine variations in physiological age of seed potatoes used by Alberta growers; to correlate age with tuber yields	W.T. Andrew	University of Alberta — Edmonton	24,900	completed
Development of a Monitoring Program for Control of the Sugar Beet Root Maggot in Sugar Beets • to implement a field monitoring/prediction program for root maggots; to establish application times for post-emergent insecticides; to determine effect of maggot population density on beet yield	G.H. Whitfield P. Bergen	Agriculture Canada — Lethbridge, and Alberta Sugar Company — Taber	50,236	in progress
Alternate Crop Varietal Development: Irrigated Soybeans and Dryland Safflower • to develop soybean and safflower varieties suitable for Alberta conditions	H.H. Muendel	Agriculture Canada — Lethbridge	141,528	50,000
Regional Potato Cultivar Evaluation • to select varieties with early maturity, disease and nematode resistance, superior and stable yield and desirable processing traits	D.R. Lynch	Agriculture Canada — Lethbridge	176,510	90,678
Perennial Flowers for Fresh and Dried Markets • to assess the feasibility of commercial outdoor production	B.J. Godwin	Olds College — Olds	11,750	9,000
Special Crops Agronomic Studies for Central and North-Central Alberta • to screen pulse cultivars for adaptability to central and north-central Alberta conditions; to investigate effects of seeding time, soil fertility and harvest methods on yield and quality	F.M. Mederick	Alberta Agriculture — Lacombe	49,668	47,328
Evaluation of Fertilizer Regimes for Potted Nursery Stock • to determine the effect of fertilizers and application methods	E.B. Casement A.J. Heuver	Alberta Agriculture — Brooks, and Eagle Lake Nurseries — Strathmore		11,241
Improved Molecular Diagnosis of Potato Spindle Tuber Disease • to evaluate and adapt new techniques for detection of potato spindle tuber viroid under field conditions	C. Hiruki	University of Alberta — Edmonton		44,400

ON-FARM DEMONSTRATION PROGRAM PROJECT SUMMARIES

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator/ Office	Funding 1984-85	Awarded 1985-86
REGION 1 - SOUTHERN ALBERTA				
Evaluation of the Warm Treatment of Swine Manure • to evaluate a combined solids-liquids separator/warm treatment process	Al Coutts *Bow Island*	Gregg Dill *Lethbridge*	7,988	in progress
Savory Grazing Method • to determine effectiveness of Savory Grazing under commercial ranch conditions	Blake Holtman Mary Holtman *Taber, Fort Macleod*	Carole Rex *Taber* Ted Nibourg *Claresholm*	in progress	17,023
Alfalfa in Controlling Saline Seeps • to compare use of taproot and fibrous root alfalfa for reducing saline seeps	William Norris *Warner*	Don Wentz *Lethbridge*	1,263	in progress
Wind Power for Pumping Water • to design simple, low-cost, wind-powered equipment for pumping water	Norman Ward *Granum*	Ted Nibourg *Claresholm*	935	in progress
Phosphate Fertilizer on Alfalfa • to assess effects of phosphate application on Angus alfalfa	Dan Loewen *Rosemary*	Gordon Frank *Brooks*	in progress	143 completed
Electronic Bulletin Board System • to develop a message and information service to be accessed through on-farm computers	Garry Kennedy *Brant*	Dennis Stretch *Vulcan*	1,820	in progress
Polypay Sheep • to test the breed in intensive production; to compare its productivity with local breeds and crosses	John Balderson *Magrath*	Jim Hansen *Cardston*	11,900	3,150
Alfalfa Variety Trials • to compare dryland yields of alfalfa varieties; to assess use of alfalfa in controlling saline seeps	Barry Thomas *Warner*	Don Wentz *Lethbridge*	3,300	600
Pure Alfalfa vs Grass-Alfalfa Mix for Rooting Depth • to compare yields of pure and grass-alfalfa; to assess their usefulness in controlling saline seeps	Bruce Atkins *Warner*	Don Wentz *Lethbridge*	3,300	completed
Snow Management • to demonstrate use of snow management to increase spring soil moisture in a chinook area	Dryland Salinity Control Association *Southern Alberta*	Don Wentz *Lethbridge*	1,500	in progress
Alfalfa Seed Production • to determine costs and benefits of dryland production; to evaluate use of alfalfa in reducing saline seeps	Don Welsh *Milk River*	Don Wentz *Lethbridge*	2,775	in progress
Effect of Row Spacing on the Yield of Spring Wheat • to assess effects of row spacing on yields of dryland Neepawa red spring wheat	Matt Schebel *Lethbridge*	Delyn Jensen *Lethbridge*	1,900	in progress
Alfalfa Inoculation • to determine yield differences between inoculated and non-inoculated alfalfa stands; to compare performance of various inoculants	John P. Lutz *Warner*	Don Wentz *Lethbridge*	3,300	900
Corn Stover Feeding • to assess use of corn stover through feeding and digestibility trials	Robert L. Laidlaw *Bow Island*	Dave Cubbon *Bow Island*	2,200	in progress
Deep Plowing and Ripping of High Sodium Soils • to compare effects on yields of using plows and subsoilers	Terry Doran *Bow Island*	Dave Cubbon *Bow Island*	4,280	in progress
Comparison of Conventional vs Acid Fertilizers • to compare duration of phosphorus availability	Harold Kuehn *Warner*	Ross McKenzie *Lethbridge*	1,650	completed
Biological Weed Control on Italian Ryegrass Sheep Pasture and Sheep Fence Evaluation • to test effectiveness of annual ryegrass and sheep in weed control; to evaluate four types of fencing	Geoff de Boer *Barons*	Michael Clawson *Lethbridge*	1,206	completed
Transplanting Sugar Beets from Greenhouse to Field • to evaluate starting sugar beets in a greenhouse to reduce spring losses	Zoltan Gergely *Coaldale*	Michael Clawson *Lethbridge*	11,254	in progress
Yield Related to Seeding Width for Dryland Alfalfa • to determine effects of seeding width on yields; to determine effect of alfalfa cultivation on saline seeps	Dennis Irvine *Barons*	Don Wentz *Lethbridge*	3,473	in progress
Dryland Alfalfa Fertilizer Trial • to determine effect of fertilizer use on dryland alfalfa; to determine effectiveness of alfalfa in controlling saline seeps	John Erdman *Barons*	Don Wentz *Lethbridge*	2,873	in progress
On-Farm Slurry Inoculation • to assess inoculation of pulse crops with a slurry application system	Pulse Growers Association of Alberta *Southern Alberta*	Blair Roth *Lethbridge*		7,610 completed
Maximizing Wheat and Corn Yields Under Irrigation • to assess effects of agronomic practices on yields of soft wheat and grain corn	Alberta Corn Committee *Bow Island, Burdett*	Blair Roth *Lethbridge*		9,060
Phosphorus Application Trials • to assess effects of phosphorus on alfalfa; to assess alfalfa cultivation for controlling saline seeps	Barry McFarland *Carmangay*	Don Wentz *Lethbridge*		2,942

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator/ Office	Funding Awarded 1984-85	1985-86
Effect of Water Quality on Broiler Chicken Performance • to assess use of high quality water in broiler production	Ken Baerg *Pincher Creek*	Martin Dyck *Lethbridge*		2,000
Use of Inexpensive Housing with Outside Pens for Feeder Pigs • to compare costs of housing pigs in wood and straw shelters versus modern feeder barns	Blair Hennes *Medicine Hat*	E. Alan George *Lethbridge*		3,160
Canola Meal as an Alternative Protein Supplement for Use in Swine Rations • to assess pig performance, feed costs and days to market	C.R. Andrews *Bow City*	E. Alan George *Lethbridge*		2,520 completed
Twin Butte Brush Control • to compare effectiveness of traditional control techniques and mow/spray follow-up management	Michael Cowley *Twin Butte*	Bruce Friedel *Pincher Creek*		8,385
REGION II - SOUTH CENTRAL ALBERTA				
Special Crops Demonstration Trial • to examine feasibility of special crop cultivation	Chinook Applied Research Association *Hanna, Coronation*	Russel Horvey *Hanna*	11,660	14,224
Evaluation of Moisture Conservation by Various Stubble Heights • to determine effects of stubble height on quantity of snow trapped	Chinook Applied Research Association *Oyen*	Larry Welsh *Airdrie*	1,406	570 completed
Evaluation of Moisture Conservation of Continuous Cropping vs Summerfallow Rotation • to measure moisture levels and crop yields	Chinook Applied Research Association *Youngstown*	Russel Horvey *Hanna*	1,967	2,873
Evaluation of Moisture Conservation by Shelter Belts • to determine and demonstrate effectiveness of shelter belts in conserving moisture	Chinook Applied Research Association *Altario*	Larry Welsh *Airdrie*	2,319	completed
Pasture Sage Control • to demonstrate chemical sage control	Chinook Applied Research Association *Hanna*	Russel Horvey *Hanna*	864	929
Out-of-Season Breeding of Lactating Columbia, Suffolk-Columbia and Hampshire-Columbia Ewes • to evaluate practice of breeding sheep out of season by stimulating lactating ewes	May Lockhart John Lockhart *Okotoks*	John Knapp *Airdrie*	550	completed
Ammoniating Chaff • to determine feasibility of ammoniating chaff to improve its nutrient value	Hans Mundt *Chinook*	John Ruschkowski *Oyen* Rich Smith *Airdrie*	2,400	completed
Increase of Alfalfa Yields Under Irrigation Using Recommended Fertilizer Application • to demonstrate costs and benefits of fertilizing	Pat Cammaert *Rockyford*	Art Edwards *Strathmore*	2,123	in progress
Increasing Hay and Pasture Production on Dryland Using Annuals • to assess use of Norstar winter wheat as supplementary pasture; to compare returns from pasture and grain	Henry Cuthbertson *Lyalta*	Art Edwards *Strathmore* Donald Milligan *Airdrie*	4,942	in progress
Winter Wheat Production in a Continuous Crop Rotation in South Central Alberta • to evaluate weed control, fertilizer requirements, and survival	W.M. Burton *Olds*	Ron Woolf *Olds*	3,350	in progress
Using Electric Fencing as Predator Control for Sheep • to design and construct an electric fence	Bob Francis *Priddis*	John Knapp *Airdrie*	5,112	in progress
Norstar Winter Wheat Seeded with Barley Silage for Fall Grazing • to demonstrate underseeding of winter wheat for use as late summer and fall pasture	Robert Carr *Okotoks*	Allen Toly *High River*	4,590	completed
Native Range Direct Reseeding • to evaluate increasing native range productivity by seeding several grass types	Murray Woods *Oyen*	John Ruschkowski *Oyen*	3,800	in progress
Early Breeding of Heifers • to compare costs and productivity of breeding at seven to nine months of age versus 14 to 15 months	Donald Bezjack *Cochrane*	Donald Milligan *Airdrie*	790	in progress
Ultrasound Pregnancy Checking for Dairy Cattle • to evaluate ultrasound techniques for determining pregnancy in cows	Dennis Oster *Torrington*	Scott Meers *Three Hills* Donald Milligan *Airdrie*		1,829
Fall Grazing of Winter Annuals Underseeded in Cereal Silage • to demonstrate use of winter annuals underseeded in an oat/barley crop	Ian Watt *Cremona*	Steve Archibald *Olds* Donald Milligan *Airdrie*		3,635
Rotational Grazing Demonstration • to assess costs, stocking rates, and amount of beef produced per acre	Jack Archer *Olds*	Steve Archibald *Olds*		760

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator/ Office	Funding 1984-85	Awarded 1985-86
Effect of Liming Grey Wooded Soil • to evaluate use of liming to increase hay silage yields	Bruce Beattie *Sundre*	Steve Archibald *Olds*		1,848
Soil Cement as Bunker Silo Floor and Feedlot Pad • to demonstrate economic and technical feasibility of using soil cement	Lawrence Trenholm *Olds*	Steve Archibald *Olds* Rich Smith *Airdrie*		2,542
Data Processing Hardware and Software • to evaluate on-farm computers; to assist producers with limited data processing experience	James Watt *Cremona*	Lorne Owen *Airdrie*		2,940
Annual Forages as Grazing Alternatives • to evaluate forage rape, winter wheat, Italian ryegrass, and kale for fall grazing	Everett Bennett *Airdrie*	Donald Milligan *Airdrie*		1,934
Use of Various Products for Preservation of Hay • to assess effectiveness and costs of using ammonia, sulfur dioxide and a commercial product	Bill McFarquhar *Cremona*	Donald Milligan *Airdrie*		1,000
Hay Crop Comparisons • to compare performance of various hay mixtures	Pockar's Ranches *Sundre*	Steve Archibald *Olds*		1,370
Vegetative Reclamation of Saline Seeps • to evaluate use of alfalfa in recharge and saline-tolerant grass in discharge areas	Ben Fecho *Hanna*	Lee Melvill *Hanna* John Timmermans *Airdrie*		3,350
Fertilizers for Winter Wheat Production • to compare broadcast and liquid fertilizers applied in the spring	Stan McNeill *Empress*	John Ruschkowski *Oyen*		575
Snow and Erosion Control Barrier • to reduce erosion on summerfallow fields; to enhance soil moisture by erecting barriers	William Powell *Youngstown*	John Ruschkowski *Oyen*		1,500
Winter Wheat Production as a Means of Reducing Summerfallow • to demonstrate economical cropping alternatives to summerfallow	Brent Clampitt *Oyen*	John Ruschkowski *Oyen* Colin McKenzie *Brooks*		1,095
Winter Wheat Production as a Means of Reducing Summerfallow • to demonstrate economical cropping alternatives to summerfallow	Norman Storch *Hanna*	Russ Horvey *Hanna* Colin McKenzie *Brooks*		1,095
Winter Wheat Production as a Means of Reducing Summerfallow • to demonstrate economical cropping alternatives to summerfallow	Tom Osadczuk *Iddesleigh*	Murray Green *Airdrie* Colin McKenzie *Brooks*		1,095
Long-Term Toadflax Control on Summerfallow Fields • to demonstrate various control methods	Richard Bruntjen *Wimborne*	Jack Hazelwood *Three Hills*		3,000
Rotational Savory Cell Grazing • to evaluate Savory Grazing; to demonstrate use of high tensile fencing	Donald Peterson Betty Peterson *Sundre*	Steve Archibald *Olds* Donald Milligan *Airdrie*		3,025
Companion Crop Comparisons for Establishing a Forage Stand • to compare canola and barley as companion crops	Ian Harvie *Olds*	Steve Archibald *Olds*		1,500
Self-Feeders vs Floor Feeders in Hog Barns • to compare efficiency in a commercial farrow-finish operation	Joe Jeffray *Airdrie*	Rich Smith *Airdrie*		2,650
Use of Hovers in Farrowing Crates to Reduce Pre-Weaning Piglet Mortality • to improve annual per sow performance by reducing mortality	Burt Jorgenson *New Brigden*	John Ruschkowski *Oyen*		3,700
Chaff Ammoniation • to develop cost-effective, practical methods for ammoniating chaff	Ron Walton *Hanna*	Russel Horvey *Hanna*		1,030
REGION III - NORTH CENTRAL ALBERTA				
Pasture Improvement Demonstration • to demonstrate use of forage management, adapted species, and rotational grazing to improve pasture quality	Geoff Hoar David Hoar *Innisfail*	Ted Darling *Innisfail*	1,907	1,808 completed
Beef Pasture Demonstration Project • to compare costs and benefits of a high production grazing system vs grain production	Larry Steeves *Meeting Creek*	Dale ZoBell *Red Deer*	2,830	2,696 completed
Effect of Synovex, Ralgro and Bovaid on Suckling Calves • to compare growth implant performance; to determine implant interaction with insecticide ear tags	Dave Carlyle *Bentley*	Dwight Karren *Lethbridge*	1,278	completed
Evaluation of Implant Programs and Bovaid on Calves to Yearlings • to compare implant programs in terms of castration date, reaction to stress, and interaction with insecticide ear tags	Stan Marcinek Ron Marcinek *Condor*	Dwight Karren *Lethbridge*	1,843	completed

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator/ Office	Funding 1984-85	Awarded 1985-86
Portable Lambing Facility • to develop a portable structure to improve care of lambs and ewes	Ian Clark Deb Clark *Bentley*	Stuart Tucker *Lacombe*	399	in progress
Soil Project — Deep Ripping • to determine effects on crop production of deep ripping heavy clay soils	Leslie Deuchar *Delburne*	Peter Funk *Red Deer*	900	completed
Soil Project — Deep Ripping • to determine effects on crop production of deep ripping heavy clay soils	K. Gongaware *Delburne*	Peter Funk *Red Deer*	900	in progress
Mosquito and Fly Control on Range Cattle • to demonstrate continuous treatment of livestock with registered pesticides	Bill Hunt *Endiang*	Glen Werner *Stettler*	5,810	completed
Dayslend Wheat and Barley Varietal Trials • to assess local wheat and barley yields, lodging, shattering and disease	Tom Zwack Ed Zwack *Dayslend*	Bruce Friedel *Sedgewick*	612	1,058 completed
Banding vs Conventional Fertilizer Placement — Fall • to compare fall banding with conventional treatments on sandy, rolling land	Morley Blanch *Gwynne*	Hector Goudreau Pat Ramsey *Wetaskiwin*	975	in progress
Banding vs Conventional Fertilizer Placement — Spring • to compare spring banding with conventional treatments on wet soils	Hector Dansereau *Millet*	Hector Goudreau Pat Ramsey *Wetaskiwin*	975	in progress
Banding vs Conventional Fertilizer Placement — Spring • to compare spring banding with conventional treatments on deep topsoil	Lorne Fuhrhop *Wetaskiwin*	Hector Goudreau Pat Ramsey *Wetaskiwin*	975	in progress
Banding vs Conventional Fertilizer Placement — Spring • to compare spring banding with conventional treatments on alluvial and aeolian soils	Donald Kelly *Wetaskiwin*	Hector Goudreau Pat Ramsey *Wetaskiwin*	975	in progress
Banding vs Conventional Fertilizer Placement — Spring • to compare spring banding with conventional treatments on degraded black soils	Heinz Kummer *Wetaskiwin*	Hector Goudreau Pat Ramsey *Wetaskiwin*	975	in progress
Banding vs Conventional Fertilizer Placement — Fall • to compare fall banding with conventional treatments on grey wooded soils	Danny Cameron Reid Cameron *Millet*	Hector Goudreau Pat Ramsey *Wetaskiwin*	975	in progress
Banding vs Conventional Fertilizer Placement — Fall • to compare fall banding with conventional treatments on sandy soils	Arne Carlson *Gwynne*	Hector Goudreau Pat Ramsey *Wetaskiwin*	975	in progress
Banding vs Conventional Fertilizer Placement — Fall • to compare fall banding with conventional treatments on sandy soils	George Jones *Wetaskiwin*	Hector Goudreau Pat Ramsey *Wetaskiwin*	975	in progress
Banding vs Conventional Fertilizer Placement — Fall • to compare fall banding with conventional treatments on gently rolling land	Stevan Lindholm *New Norway*	Hector Goudreau Pat Ramsey *Wetaskiwin*	975	in progress
Banding vs Conventional Fertilizer Placement — Spring • to compare spring banding with conventional treatments on heavy black soils	Doug Reimchen *Wetaskiwin*	Hector Goudreau Pat Ramsey *Wetaskiwin*	975	in progress
Corn Silage Production for Dairy Cows in the Camrose Area • to determine costs and benefits; to compare corn silage with traditional silages, and to assess its nutritional qualities	Ivo Weder *Camrose*	Dale ZoBell *Red Deer*	1,156	completed
Round Bale Hay Silage (Continuous Plastic Bags) • to evaluate the Bag-O-Matic system in terms of weather protection, storage losses and feed quality	Dean Doll *Innisfail*	Ted Darling *Innisfail*	1,310	completed
Crop Yield Management • to assess use of an on-combine grain weigh scale	Craig Shaw *Lacombe*	Neil Miller *Lacombe*	600	in progress
Preservation of High Moisture Grain with Sulfur Dioxide • to evaluate use of sulfur dioxide	Warren Elofson Robin Elofson *Ponoka*	Rick Williams *Ponoka*	3,285	completed
Ammoniation of Alfalfa-Grass Hay • to demonstrate costs and procedure for high moisture hay preservation through ammoniation; to assess nutritional quality of hay thus treated	Merlin Stewart *Stettler*	Andy Birch *Stettler*	600	completed
Value of Temperature Monitoring and Control for Grain Storage • to evaluate performance and cost of computerized temperature monitoring in natural air drying	David Crompton *Tees*	Robert Borg *Red Deer*	9,220	in progress
Agronomic and Nutritional Comparison of Fall Seeded vs Spring Seeded Cereals for Silage • to compare winter hardiness, weed control, yield, quality and production costs for winter wheat, fall rye and spring seeded barley	Gordon McFadden *Bluffton*	Gordon Bacon *Rimbey*	382	in progress
Cow-Calf Rotational Grazing Pasture • to demonstrate use of rotational grazing to increase carrying capacity on unimproved pasture and extend grazing season; to determine effects of soil aeration; to develop alternative pasture improvement methods	Darryl Skaret *Armena*	David Samm *Camrose*		5,070

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator/ Office	Funding 1984-85	Awarded 1985-86
Cereal Variety Testing • to compare yield and days to maturity for wheat, oat, and barley varieties on dark brown soils	Robert Kampen *Lougheed*	Bruce Friedel *Sedgewick*		738
Liming Acid Soils • to determine effects on yields of liming acid soils	Leon Layden Merle Layden *Innisfail*	Ted Darling *Innisfail*		4,000 completed
Ammoniation of Barley Straw Bales • to evaluate ammoniated straw as an alternative to hay	John Petty *Innisfail*	Ted Darling *Innisfail*		465 completed
Improving Feed Grain Yields Through Effective Use of Fertilizer • to determine effects of fertilizers on barley and oat yields	Steve Garbauski *Wetaskiwin*	Pat Ramsey *Wetaskiwin*		1,620 completed
Evaluation of Fall Pasture with Forage Kale and Fall Rye • to compare cow-calf productivity of different fall pasture systems	Richard Griebel *Castor*	Brad Hansen *Coronation*		1,015 completed
Intensive Management of Cereals and Oilseeds • to determine costs and benefits	Fred Lutz *Innisfail*	Ted Darling *Innisfail*		1,055
Pasture Rotational Grazing for Lambs Using Movable Electric Fencing • to demonstrate grazing techniques for growing and finishing lambs	Chris Harvey *Bluffton*	Gordon Bacon *Rimbey*		1,400
Evaluation of Annual Forages Under Intensive Rotational Grazing • to evaluate winter wheat and Italian ryegrass	Bob Grinde *Rimbey*	Gordon Bacon *Rimbey*		1,940 completed
Pulse Crop Fertility Trial with Fababeans • to determine protein levels, yields, time to maturity, and soil nutrient levels	Rodney Anderson *Kelsey*	David Samm *Camrose*		945 completed
Manure Utilization on Intensively Grazed Pasture Using a Travelling Manure Gun • to evaluate a reel-type gun irrigation system for manure application; to assess effects of swine manure on pasture	Dennis Fox *Eckville*	Brian West *Red Deer*		1,947
The Effect of Bovatec and Rumensin on Feedlot Performance • to compare effects of feed additives on production costs and steer performance	FEM Farms *Lacombe*	Dale ZoBell *Red Deer*		7,970 completed
Ammoniation of Barley and Wheat Straw • to evaluate use of anhydrous ammonia to increase feed value of straw	Robert J. Reimer *Wetaskiwin*	Pat Ramsey *Wetaskiwin*		1,676
The Response to Double Dose Ralgro Implants of Feedlot Steers • to determine effects of implants on steer performance	Murray Stauffer *Eckville*	Dale ZoBell *Red Deer*		1,840 completed
The Addition of a Protein Liquid Supplement to Straw Bales as a Roughage Source for Beef Cows • to demonstrate effects on cow performance of adding a 32% protein liquid supplement to round feed bales	John Hermann *Caroline*	Dale ZoBell *Red Deer*		1,188 completed
Ammoniation of Tough Oat Greenfeed Bales • to investigate feasibility of baling high moisture greenfeed; to determine changes in feed value as a result	John C. Reid *Rocky Mountain House*	Dale ZoBell *Red Deer*		1,215
Reducing Summerfallow by Growing Winter Wheat • to determine benefits of winter wheat cultivation under local conditions, to assess field performance of a new seed drill	Robert Diprose *Botha*	Wayne Jackson *Red Deer*		985
Reducing Summerfallow by Growing Winter Wheat • to determine benefits of winter wheat cultivation under local conditions; to assess field performance of a new seed drill	Byron Muddle *Kirriemuir*	Wayne Jackson *Red Deer*		985
High-Yield Anti-Lodging Programs • to produce high-yielding, high-quality feed barley by reducing lodging	Lee Robson *Rimbey*	Wayne Jackson *Red Deer*		875
Comparison of Sow Performance Under Computer Programmed Feeding vs Stall Feeding • to compare performance of computerized and conventional feeding systems	Dave Allan *Bentley*	Randy Fielder *Red Deer*		5,500
Special Crop Demonstration Trial • to demonstrate cultivation of special crops in north central Alberta	Chinook Applied Research Association *Coronation*	Russel Horvey *Hanna*		7,222
Dual Cropping: Field Peas and Canola • to evaluate dual cropping; to compare canola performance under this regime to performance in a single-crop system	David Goldstrom *Innisfail*	Ted Darling Doug Cornell *Innisfail*		979
Intensified Barley Management • to determine feasibility of intensified barley management under local conditions	Lorne Turner *Eckville*	Wayne Jackson *Red Deer*		1,608
REGION IV - NORTHEAST ALBERTA				
Evaluation of Cultural Practices Used to Extend Growing Season, Increase Production and Improve Quality of Vegetables • to evaluate practices for increasing fruit and vegetable production and quality	Robert Grey Bernice Grey *Fort McMurray*	Harvey Yoder *Lac La Biche*	1,671	completed
Zero (Minimum) Tillage Demonstration • to study feasibility of zero and minimum tillage	Keith Brower *Wainwright*	Brian Wilson *Wainwright*	4,200	3,718

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator/ Office	Funding 1984-85	Awarded 1985-86
Application of Passive Solar Collectors to Slant Wall Farm Shops • to create an inexpensive temperature control method for farm shops	Kirk Harrold *Lamont*	Emile de Milliano *Lamont*	200	in progress
Comparisons of Various Varieties of Cereal Grains for Silage • to compare costs and benefits of using different varieties; to determine effect of cutting stage on nutrient yield	Ernest Livingstone Doug Livingstone *Vermilion*	George Rock *Camrose* Mike Doggart *Edmonton*	7,360	completed
Beef Cow-Calf Rotational Grazing Demonstration • to demonstrate rotational grazing using new varieties, chemical fertilizers, and appropriate management techniques	Gordon Ceretzke *Andrew*	Tennis Marx *Lamont*	3,990	in progress
A Comparison of Aspen Regrowth Control Methods • to demonstrate control of regrowth through aerial spraying of herbicides at various stages of plant growth	Neil Cory *Grand Centre*	Ronald Hockridge *Bonnyville*	7,500	completed
Pasture Rejuvenation and Renovation for Northeastern Alberta • to demonstrate six methods of rejuvenation and renovation	Douglas Millar *St. Paul*	Kirsty Ross *St. Paul*	6,160	in progress
Rotational Grazing Project • to demonstrate rotational grazing using fertilizers and new grass varieties	Vaughn Hanson *Viking*	Jerome Manchur *Ryley*	in progress	3,650
Peas as an Alternate Forage Crop • to demonstrate use of peas to obtain higher protein forage, improved soil fertility, and continuous cropping	Gordon Graves Dwayne Kalinsky *Iron River*	Ronald Hockridge *Bonnyville*	4,800	4,080
Seeding Techniques for Altai and Russian Wild Rye • to fall seed wild rye into clean stubble, so that rye seed is produced before grazing; to demonstrate use of wild rye for spring and fall grazing	Henry Rosing *Innisfree*	Ted Ford *Vegreville*	2,900	in progress
Intensive Beef Cow-Calf Grazing • to demonstrate short-term intensive grazing; to assess electric fencing; to determine feasibility of extending grazing season	Del Huchulak *Warspite*	Grant Gillund *Smoky Lake*	5,000	in progress
Alternative Methods of Nitrogen Application on Hayland • to evaluate effectiveness and costs of three application methods	Charles Magneson Terry Magneson *Ryley*	Jerome Manchur *Ryley*	2,080	975
Rotational Grazing for Dairy Cows • to evaluate forage production, milk yields, and costs	Grant Clarke *Vilna*	Grant Gillund *Smoky Lake*	4,100	in progress
Liming and Deep Ripping • to demonstrate use of liming to decrease soil acidity and increase forage production; to demonstrate use of deep ripping to improve soil structure	Daryl Charlton *Czar*	Agnes Whiting *Provost*	3,225	completed
Feasibility of Deep Subsoiling Using Deep Tillage Equipment • to determine feasibility of deep tilling grey wooded soil to improve tilth and subsurface water movement	Peter D. Keryluk *Two Hills*	Shane Dobson *Two Hills*	1,060	completed
Drill Row Spacing Seeding Demonstration • to determine effects of smaller seed row spacing on weed control and lodging	Eric Sikora *Warspite*	Don Christensen *Smoky Lake*	3,575	in progress
Canola Meal as an Alternative Protein Supplement in Swine Rations • to demonstrate use of canola meal as a partial substitute for soy meal	Dale Malin *Willingdon*	Ron Bazylo *Vermilion*		2,144 completed
Canola Meal as an Alternative Protein Supplement in Swine Rations • to demonstrate use of canola meal as a partial substitute for soy meal	Martin Wiedemeyer *Derwent*	Ron Bazylo *Vermilion*		1,649 completed
Canola Meal as an Alternative Protein Supplement in Swine Rations • to demonstrate use of canola meal as a partial substitute for soy meal	Dana Giebelhaus *Vegreville*	Ron Bazylo *Vermilion*		1,649 completed
Fababean Green Manure Trial • to evaluate economic and agronomic benefits of fababean cultivation	Harold Tangen *Edgerton*	Brian Wilson *Wainwright*		1,949
Intensive Grazing Using Traditional Pasture Species • to assess use of recommended species in intensive grazing	Rick Iverson Darlene Iversen *Goodridge*	Kirsty Ross *St. Paul*		5,700
The Effects of Different Rates of Phosphorus, Potassium and Sulfur on Alfalfa Seed Production • to determine effects of fertilizer applications on a Peace alfalfa stand	Ron Zellweger *St. Paul*	Kirsty Ross *St. Paul*		1,850
Growing Winter Wheat in Standing Stubble • to demonstrate effects on soil moisture of seeding into stubble	Kendall Freed *Vegreville*	Jim Unterschultz *Vegreville*		2,635
Short Duration Grazing on Native Aspen Forest Range and Improved Range • to compare livestock production from native and improved range	Neil Cory *Grand Centre*	Ronald Hockridge *Bonnyville*		3,800
Ripping and Liming of Grey Wooded Soils • to evaluate and demonstrate crop response to three soil treatments	Leon Schaub *Plamondon*	Harvey Yoder *Lac La Biche*		2,650
Reconstitution of Barley With Whey • to assess reconstitution of barley with low-cost whey	Keith Brower *Wainwright*	Jerome Manchur *Wainwright*		4,629
REGION V - NORTHWEST ALBERTA				
Dairy Pasture Management and Fertility • to demonstrate rotational grazing with recommended pasture species and agronomic practices	Ernie Siemens *Rochester*	Gary Berger *Athabasca*	in progress	4,100 completed

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator/ Office	Funding 1984-85	Awarded 1985-86
Maximizing Returns Through Beef Cattle Utilizing Annual Pastures and Rotational Grazing • to demonstrate costs and benefits of rotational grazing on annual pastures	Ray Olesky *Sangudo*	Lloyd Giebelhaus *Sangudo*	5,925	completed
Development and Evaluation of Grazing Management Strategies on Rotationally and Intensively Grazed Pastures • to evaluate grazing management techniques in terms of cattle weight gain per acre	Pembina Forage Association *Westlock*	Ken Lopetinsky *Barrhead*	266	report pending
Round Bale Silage: An Alternative to Hay • to compare round bale silage to red clover hay; to examine storage methods; to test different balers	Ray Fausak *Evansburg*	Fred Young *Evansburg*	2,980	completed
Value of Spayed Heifers Under Feedlot Conditions • to determine costs and benefits of spaying heifers	George Lawton *Niton Junction*	Rob Hand *Barrhead*		1,290 completed
Subsurface Drainage Using Weeping Tile • to demonstrate use of tile to reduce wet areas in arable fields	Sid Jeffery *Barrhead*	Allen Macaulay *Barrhead*	7,050	in progress
Evaluation of Nitrogen Application Levels on Grey Wooded Soils • to demonstrate effects of application level on common grain crops	Earl Lawson *Drayton Valley*	Doug Walkey *Drayton Valley*	500	completed
Renovating Forage Stands on Peat Soils • to evaluate methods for re-establishing stands	Charles Goupil *Athabasca*	Gary Berger *Athabasca*	3,650	3,520 completed
Intensive Cereal Management Techniques Applied to Barley Production in Parkland Alberta • to combine three techniques of intensive cereal management and assess their effects on yield, economic returns, lodging and disease	Ken Nelson *Westlock*	Rick Bjorge *Westlock*	6,950	4,910
Economics of Fertilizer Application on Pasture • to demonstrate effects of nitrogen on pasture carrying capacity; to demonstrate new fencing techniques	Charles Nichol *Barrhead*	Allen Macauley *Barrhead*	2,849	completed
Fertility Levels on Corn Silage • to determine effects of fertilizer on yields of two corn varieties	F. Paul Bryant *Lethbridge*	Janette McDonald Adam *Lethbridge*	888	completed
Artificial Heat Synchronization for Controlled Beef Cattle Breeding • to assess artificial heat synchronization in terms of costs, calving interval, labor requirements, and bull capability	Ron Herrmann Ilke Herrmann *Newbrook*	Robert Drysdale *Thorhild*	1,815	completed
Feeding Liquid Whey to Lactating Dairy Cows • to measure milk production, forage consumption, body weight changes and manure production in dairy cattle fed liquid whey	John Allam *Andrew*	Dave Ward *Sherwood Park*	4,025	completed
Integrated Broad Spectrum Control of Livestock-Related Insect Pests • to determine effectiveness of a contact and systemic compound in controlling pests	Stephen Shwetz *Waskatenau*	John VanderLeest *Thorhild*	950	completed
PCW Agra-Tech Seed Treatment • to determine effects on yield and emergence of impregnating seed barley with water	Roger Prefontaine *Legal*	John Hladky *Morinville*	1,300	completed
Clover Plowdown Evaluation • to determine effects of various clover plowdown dates and incorporation methods on soil nitrogen and tilth	Wes Kirk *Alberta*	Robert Drysdale *Thorhild*	481	610
The Effect of Phosphate Placement on Barley and Wheat • to assess effects on barley and wheat yields of different phosphate placements	Bryan Radke *Barrhead*	Jim Soldan *Barrhead*	2,107	completed
Use of Spot-On to Control Horn Flies • to assess effectiveness of a commercial insecticide in horn fly control	Ross Moon *Cherhill*	Rob Hand *Barrhead*	570	completed
Quack Grass Control • to compare chemical and cultural methods of quack grass control; to assess a quack grass root picker	Stan Wiskel *Athabasca*	Gary Berger *Athabasca*	585	completed
Soil Amendments Using Industrial Ash • to demonstrate use of bottom ash to reduce acidity and add micronutrients	Ken Thiessen *Tomahawk*	Doug Walkey *Drayton Valley*	3,265	in progress
Production of Cereal and Forb Selections for Drying to Supply Floral Trade • to demonstrate production, harvesting, coloring and packaging of dried plant materials	William B. Hutchison *Whitecourt*	Grant Gillund *Smoky Lake*	1,500	in progress
Cultivation of *Pleurotus ostreatus* (Mushrooms) in Woodlot and Greenhouse Rotations • to develop a 70-day greenhouse system for increased production	William B. Hutchison *Whitecourt*	Tom Krahn *Brooks*	1,500	in progress
Installation of Foggers to Control Dust and Fungus Spores in Total Confinement Turkey Barns • to assess effects of fogger use on turkey mortality and weight gains	John Chalifoux *Thorhild*	Wayne Winchell *Barrhead*	888	in progress
Agronomics of Fababeans and Field Peas in North Central Alberta • to assess costs and benefits of various agronomic practices	Northern Branch, Pulse Growers Association of Alberta *Morinville*	Ken Lopetinsky *Barrhead*		11,035

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator/ Office	Funding 1984-85	Awarded 1985-86
Renovation of Peat Soil • to evaluate convenience, cost, and effects on yield and tilth of mixing peat with mineral soils	Marvin Marks *Westlock*	Rod Carlyon *Westlock*		3,235
Rotational Grazing Using Low Cost Electric Fencing for Dairy Cattle • to assess effects of rotational grazing on milk production	Eileen Dotzler *Fort Assiniboine*	Allan Macaulay *Barrhead*		2,122
Agronomics of Alfalfa Production • to demonstrate effects of phosphorus and potassium on alfalfa stands, and effects of clipping on winter survival	Five Lakes Farms Ltd. *Mayerthorpe*	Lloyd Giebelhaus *Sangudo*		4,506
Pasture Rejuvenation • to compare various methods of pasture rejuvenation	West Central Forage Association *Evansburg*	Fred Young *Evansburg*		2,721
Fertilizer Placement Evaluation — Barley • to determine effects of fertilizers and application rates on barley yields	Ralph Geinger Frank Geinger *Mayerthorpe*	Gerald Laarhuis *Sangudo*		1,109
Fertilizer Placement Evaluation — Canola • to determine effects of fertilizers and application rates on canola yields	Ray Courchesne *Fort Saskatchewan*	John Hladky *Morinville*		1,121
Production Data from Fall Calving of Beef Cows • to measure spring weaning weights, fall yearling weights, feed inputs and other production data	Louis Baudin *Edson*	Dan Peters *Edson*		967
Canola Meal as an Alternative Protein Supplement for Use in Swine Rations • to demonstrate use of canola meal as a partial substitute for soy meal	Arnold Nanninga *Barrhead*	Marvin Salomons *Barrhead*		2,767
Canola Meal as an Alternative Protein Supplement for Use in Swine Rations • to demonstrate use of canola meal as a partial substitute for soy meal	Dave Baker *Neerlandia*	Marvin Salomons *Barrhead*		2,047
Use of Dry Fermentation Aids in Baled Hay • to compare harvesting of dry hay, untreated wet hay, and hay treated with Siloguard	Allan Hughes *Buck Creek*	Doug Walkey *Drayton Valley*		1,510
Comparison of Hay Preservatives on Round Alfalfa Bales • to compare preservative treated and untreated hay	Stan Sissons *Clyde*	Ken Lopetinsky *Barrhead*		2,777 completed
Plowing vs Cultivating vs Discing • to compare yield, weed population, disease incidence and soil moisture content	Greg Kyle *Morinville*	John Hladky *Morinville*		845
Hay Savor Trials • to test effectiveness of Hay Savor for treating high moisture hay	John Kozubski *Warburg*	Janette McDonald Adam *Leduc*		998 completed
Alternative Perimeter Fence Designs • to compare construction costs, ease of construction, and durability of four types of barbed and smooth wire fencing	Pembina Forage Association *Westlock*	Bob Buchanan *Barrhead*		1,448
Demonstration of Weigh Wagon for Agronomic Data Collection • to obtain yield data for plot comparisons	Northern Branch, Pulse Growers Association of Alberta *Morinville*	Ken Lopetinsky *Barrhead*		10,500
Intensive Management of Spring Wheat for High Yields • to compare intensive cereal management techniques with conventional practices	Bruce Fuhr *Spruce Grove*	Patrick R. Hawkings *Stony Plain*		1,596
REGION VI - PEACE RIVER				
Zero Tillage vs Minimum Tillage vs Conventional Tillage Trial • to investigate costs and benefits of various tillage practices	Mike Gach *Nampa*	Brian Sawatzky *Peace River*	1,750	completed
Comparative Fertilizer Trials • to compare effects on yield of deep banding urea, anhydrous application and broadcast application	Robin Hopkins *Peace River*	Brian Sawatzky *Peace River*	1,468	completed
Echo Ranch Pasture Project • to demonstrate use of rotational grazing and fertilization in optimizing pasture	Dewey J. Stickney *Manning*	Elaine Ryl *Manning*	12,564	14,727
Reclamation Study • to increase soil productivity by improving soil acidity, structure and tilth, and by reducing salinity	Harry Rowney *Sexsmith*	Miles Kuryvial *Grande Prairie* Garry R. Coy *Fairview*	1,460	completed
Queen Rearing and Overwintering • to promote honeybee stock self-sufficiency by overwintering, queen rearing, and using Alberta-bred bees	Jerry Awram *Hines Creek* Dennis McKenna *Fairview*	Nora Paulovich *Fairview*	9,395	completed
Effect of Shelter Size on Alfalfa Pollination with Leafcutter Bees • to determine maximum acreage which can be pollinated by a single shelter	Robert Gartly *Eaglesham* Nick Konopelka *Rycroft* Raymond Wood *Three Creeks*	Peter van Everdink *Eaglesham*	6,000	completed

Project Title and Objective	Co-operating Producer/ Project Location	Project Co-ordinator/ Office	Funding 1984-85	Awarded 1985-86
Irrigation in the Lower Peace River Region • to demonstrate effect of irrigation on wheat, barley, canola and alfalfa	Al Toews *Fort Vermilion*	Arvid Aasen *Fort Vermilion*	8,000	4,500
Intensive Grain Management • to assess use of plant growth regulators with post-emergent fertilizer	Hans Vander Pol *Tangent*	Peter van Everdink *Eaglesham*	2,500	completed
Chemical-Cultural Control of Canada Thistle and Perennial Sow Thistle • to evaluate combined use of herbicides and cultural practices for thistle control	Mike Sanoski *Eaglesham*	Peter van Everdink *Eaglesham*	3,800	6,410
Indoor Wintering of Five Frame Nucleus Hives • to demonstrate indoor wintering of honeybees; to promote introduction of Alberta Bee stock	Jules Guerin *Watino*	Donald MacDonald *Falher*	4,324	in progress
Fertility Practice Effects on Yield and Quality of Legumes plus Cereals and Oilseeds in Rotation • to determine yields under optimum fertility conditions of wheat, barley, oats and canola, in rotation with alsike clover and alfalfa	Bob Carsience *Valleyview*	Darryl Wells *Valleyview*		3,213
Overwintering Alberta Bee Nucleus Hives in British Columbia • to overwinter Alberta queens in Vancouver as an alternative to purchasing packaged bees each season	David Tegart *Fairview and Vancouver*	Donald MacDonald *Falher*		2,500
Deep Banding Anhydrous Ammonia with a Field Cultivator During Spring Tillage • to determine effects on moisture conservation and organic matter breakdown of deep banding anhydrous ammonia during tillage	Joe Kramer Linda Kramer *Fairview*	Nora Paulovich *Fairview*		1,433
Nitrogen Application Methods • to determine effects of application rate and method on crop performance	Peter Polukoshko *Hines Creek*	Garry R. Coy *Fairview*		3,264
Economics of Irrigated Forage Production in the Peace River Region • to compare costs and yields of irrigated and non-irrigated hay	Edward Pimm *Grimshaw*	Brian Sawatzky *Peace River*		375
Cereal, Legume and Grass Seed Crop Residue Salvage: Harvesting and Feeding • to evaluate storage and collection methods for crop residue; to determine nutritional value of residue	Peter Lundgard *Hines Creek*	Nora Paulovich *Fairview*		7,214
Subsoiling With Amendments • to demonstrate ameliorative effects of subsoiling with calcium amendments	Grant Gaschnitz *High Prairie*	Garry Coy *Fairview*		1,630
Canola Seedbed Preparation and Seeding • to determine effects on yield of variables in seedbed preparation and sowing	Henry Dechant *Fairview*	Mike Rudakewich *Fairview*		700
Deep Tillage Comparison • to compare effectiveness of para-plows and subsoilers in increasing water infiltration in soil	Raymond Arcand *Donnelly*	Garry Coy *Fairview*		640
Patch Sprayer for Combine • to examine effectiveness of fall spraying of perennial weeds	Daniel Limoges *Girouxville*	Dave Spencer *Falher*		750
Windrow Root and Rock Picker • to modify existing machinery to improve performance	Paul-Henri Valiquette *McLennan*	Dave Spencer *Falher*		5,000
Soil Conservation and Rehabilitation Through Minimum Tillage in a Continuous Cropping System • to evaluate conservation and tillage in the Peace River region using the latest seed drill model	Ron Molson *Bonanza*	Garry Coy *Fairview*		11,350
Geotextiles for Dugout Weed Control • to assess use of geotextiles for non-chemical weed control in dugouts	Tom Stegmeier *Rycroft*	Bill Cornwell *Fairview*		1,360
Tri-Crop Seeding • to identify legumes for optimum performance in tri-crop seedings with barley and winter wheat	Lloyd Ross *Cleardale*	Nora Paulovich *Fairview*		2,973

NOTES

in progress	Project is continuing, using previously awarded funds.
completed	Project is finished.
postponed	Project has been delayed.
withdrawn	Co-operating producer withdrew project.
report pending	Project is finished but final report has yet to be submitted.

AGRICULTURAL RESEARCH COUNCIL OF ALBERTA
FARMING FOR THE FUTURE PROGRAM AUDITOR'S REPORT

To the Members of the Agricultural
Research Council of Alberta

I have examined the balance sheet of the Agricultural Research Council of Alberta Farming for the Future Program as at March 31, 1986 and the statement of revenue, expenditure and unexpended funds for the year then ended. My examination was made in accordance with generally accepted auditing standards, and accordingly included such tests and other procedures as I considered necessary in the circumstances.

In my opinion, these financial statements present fairly the financial position of the Program as at March 31, 1986 and the results of its operations for the year then ended in accordance with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

Donald D. Salmon

C.A.
Auditor General

Edmonton, Alberta
August 11, 1986

AGRICULTURAL RESEARCH COUNCIL OF ALBERTA
FARMING FOR THE FUTURE PROGRAM

Balance Sheet
As at March 31, 1986

	1986	1985
ASSETS		
Current:		
Deposits in trust (Notes 3 and 7)	$ 461,774	$ 465,953
Due from the Alberta Heritage Savings Trust Fund	188,310	74,391
	$ 650,084	$ 540,344
LIABILITIES AND UNEXPENDED FUNDS		
Current:		
Holdbacks payable	$ 167,541	$ 115,091
Research grants payable (Note 7)	142,672	63,518
Other accounts payable	30,971	8,949
	$ 341,184	$ 187,558
Unexpended funds	308,900	352,786
	$ 650,084	$ 540,344

The accompanying notes are part of these financial statements.

Statement of Revenue, Expenditure and Unexpended Funds
For the Year Ended March 31, 1986

	1986	1985
Revenue:		
Contributions from the Province of Alberta:		
Alberta Heritage Savings Trust Fund (Note 4)	$4,730,426	$4,803,501
Expenditure:		
Research grants, Schedule 1:		
Universities	1,361,988	2,109,137
Other	1,143,745	793,822
Research expenditure for administered projects, Schedule 2	1,593,920	1,298,359
Research grants for projects under the On-Farm Demonstration Program, Schedule 3	342,804	275,404
Supplies and services	167,930	200,131
Administrative personnel costs	163,925	129,423
Research grants under the Graduate Student Research Support Program	-	(2,165)
	4,774,312	4,804,111
Excess of expenditure over revenue	43,886	610
Unexpended funds at beginning of year	352,786	353,396
Unexpended funds at end of year	$ 308,900	$ 352,786

AGRICULTURAL RESEARCH COUNCIL OF ALBERTA
FARMING FOR THE FUTURE PROGRAM

NOTES TO THE FINANCIAL STATEMENTS
MARCH 31, 1986

Note 1 — Authority

The Farming for the Future Program operates under the authority of the Department of Agriculture Act, Chapter D-12, Revised Statutes of Alberta 1980.

Pursuant to section 6 of the Act, the Program was established by Ministerial Order under the administration of the Agricultural Research Council of Alberta.

Note 2 — Significant Accounting Policies and Reporting Practices

(a) Research Grants

Research grants are recorded in these financial statements when grants have been approved for payment by the Minister of Agriculture and conditions of that approval have been formally accepted by the researchers. Unexpended balances of grant funds held in researchers' accounts are not reflected in these financial statements.

Grant funds which are returned to the Program after the completion of the project are reflected in the financial statements as a reduction of current expenditure.

(b) Capital Assets

Capital assets purchased from program funds for administered projects are not reflected in these financial statements.

(c) Changes in Financial Position

A statement of changes in financial position is not provided as disclosure in these financial statements is considered to be adequate.

Note 3 — Deposits in Trust

Deposits in trust consist of deposits held as follows:

	1986	1985
The University of Alberta	$308,900	$318,216
General Trust Account, Province of Alberta	152,874	113,167
Alberta Research Council	-	34,570
	$461,774	$465,953

Note 4 — Contributions from the Province of Alberta

The Appropriation (Alberta Heritage Savings Trust Fund, Capital Projects Division) Act, 1985-86 provided for payments to the Program to a maximum of $5,000,000 for the year ended March 31, 1986 (1985 $5,000,000). This provision which enabled the Program to receive funds up to the stated maximum lapsed at March 31, 1986.

Note 5 — Commitments

As at March 31, 1986 the Program had commitments totalling approximately $4,071,000 (1985 $3,600,000) with respect to grants applications approved by the Council but awaiting approval by the Minister of Agriculture, or where conditions of approval by the Minister have not been formally accepted by researchers.

Note 6 — Administration Costs

Salaries, accommodation and other overhead costs incurred in the administration of the Program have been borne by the General Revenue Fund and are not reflected in these financial statements.

Note 7 — Comparative Figures

Deposits in trust and research grants payable at March 31, 1985 have been reduced by $1,269,837 to remove from these financial statements unexpended balances of grant funds held in researchers' accounts at the University of Alberta at that date.

Note 8 — Approval of Financial Statements

These financial statements were approved by management.

AGRICULTURAL RESEARCH COUNCIL OF ALBERTA
FARMING FOR THE FUTURE PROGRAM

Schedule of Research Grants
For the Year Ended March 31, 1986

Schedule 1

	1986	1985
Universities:		
The University of Alberta	$1,312,393	$2,006,762
The University of Calgary	43,450	2,500
The University of Manitoba	7,000	42,170
The University of Saskatchewan	(855)	(14,209)
The University of Toronto	-	58,930
The University of British Columbia	-	12,984
	1,361,988	2,109,137
Other:		
Western College of Veterinary Medicine	283,874	293,850
Veterinary Infectious Disease Organization	212,076	-
Alberta Research Council	141,468	124,350
UMA Engineering Ltd. (formerly Underwood McLellan Ltd.)	128,200	63,500
Agriculture Canada:		
Saskatchewan	111,500	109,570
British Columbia	75,000	60,300
Hardy Associates (1978) Ltd.	87,600	-
Lakeside Research	37,500	38,000
Thorlakson Feedyards Ltd.	30,000	-
Western Cooperative Fertilizers Ltd.	27,590	16,680
Olds College	11,750	9,900
Alberta Sugar Company	(2,813)	24,100
Norwest Soil Research Ltd.	-	40,550
Applied Research and Development	-	17,685
Pirker Apiaries	-	1,671
Monenco	-	(6,334)
	1,143,745	793,822
	$2,505,733	$2,902,959

Schedule of Research Expenditure for Administered Projects
For the Year Ended March 31, 1986

Schedule 2

	1986	1985
Agriculture Canada:		
Lethbridge	$ 684,330	$ 423,126
Beaverlodge	310,286	364,354
Lacombe	242,494	168,286
Fort Vermilion	54,945	53,375
Saskatoon	14,674	16,500
Alberta Department of Agriculture:		
Lethbridge	143,196	195,560
Lacombe	73,359	14,449
Brooks	61,537	76,860
Edmonton	9,099	49,513
Grants refunded	-	(63,664)
	$1,593,920	$1,298,359

Schedule of Research Grants for Projects Under the On-Farm Demonstration Program
For the Year Ended March 31, 1986

Schedule 3

	1986	1985
Region:		
Lethbridge	$ 64,398	$ 58,187
Barrhead	63,987	43,413
Airdrie	61,320	45,422
Fairview	59,478	34,634
Red Deer	56,552	38,552
Vermilion	37,069	55,196
	$342,804	$275,404

STATISTICAL TABLES

Distribution of Research Program Projects and Estimated Funding by Program Area — 1985-86

Program Area	Number of Projects	Percent of Total Number	Funding Awarded	Percent of Total Awarded
Cereals and Oilseeds	7	6.8	$654,392	13.6
Crop Protection and Entomology	12	11.7	427,090	8.8
Forages	10	9.7	369,965	7.7
Irrigation	2	1.9	215,800	4.5
Land Resources and Engineering	13	12.6	789,281	16.4
Non-Ruminants	11	10.7	424,178	8.8
Processing, Transportation, Marketing and Socio-Economics	18	17.5	576,705	11.9
Ruminants	26	25.2	1,132,100	23.5
Special Crops	4	3.9	233,556	4.8
TOTAL	103	100.0	$4,823,067	100.0

Distribution of Research Program Projects and Estimated Funding by Institution — 1985-86

Institution	Number of Projects	Funding Awarded	Percent of Total Awarded
Agriculture Canada	28	$1,687,538	35.0
Alberta Agriculture	7	412,978	8.6
Alberta Research Council	4	136,468	2.8
Olds College	1	11,750	0.2
Private Industry	6	310,890	6.5
University of Alberta	46	1,857,743	38.5
University of Calgary	1	2,750	0.1
University of Manitoba	1	7,000	0.1
Veterinary Infectious Disease Organization	2	112,076	2.3
Western College of Veterinary Medicine	7	283,874	5.9
TOTAL	103	$4,823,067	100.0

Distribution of Research Program Projects and Estimated Funding by Program Area — 1986-87

Program Area	Number of New Projects	Number of Renewed Projects	Funding Awarded	Percent of Total Awarded
Cereals and Oilseeds	1	7	$691,500	15.2
Crop Protection and Entomology	1	5	225,845	4.9
Forages	3	5	286,002	6.3
Irrigation	3	1	259,055	5.7
Land Resources and Engineering	4	9	722,593	15.8
Non-Ruminants	3	4	348,415	7.6
Processing, Transportation, Marketing and Socio-Economics	9	8	651,900	14.3
Ruminants	10	14	1,062,800	23.3
Special Crops	2	5	313,447	6.9
TOTAL	36	58	$4,561,557	100.0

STATISTICAL TABLES

Distribution of Research Program Projects and Estimated Funding by Institution — 1986-87

Institution	Number of New Projects	Number of Renewed Projects	Funding Awarded	Percent of Total Awarded
Agriculture Canada	—	20	$1,429,578	31.3
Alberta Agriculture	3	5	325,824	7.1
Alberta Research Council	2	1	104,500	2.3
Olds College	—	1	9,000	0.2
Private Industry	13	1	802,434	17.6
University of Alberta	15	25	1,503,931	33.0
University of Manitoba	1	—	35,000	0.8
Veterinary Infectious Disease Organization	1	2	166,290	3.6
Western College of Veterinary Medicine	1	3	185,000	4.1
TOTAL	36	58	$4,561,557	100.0

Distribution of Research Program Projects and Estimated Funding by Year

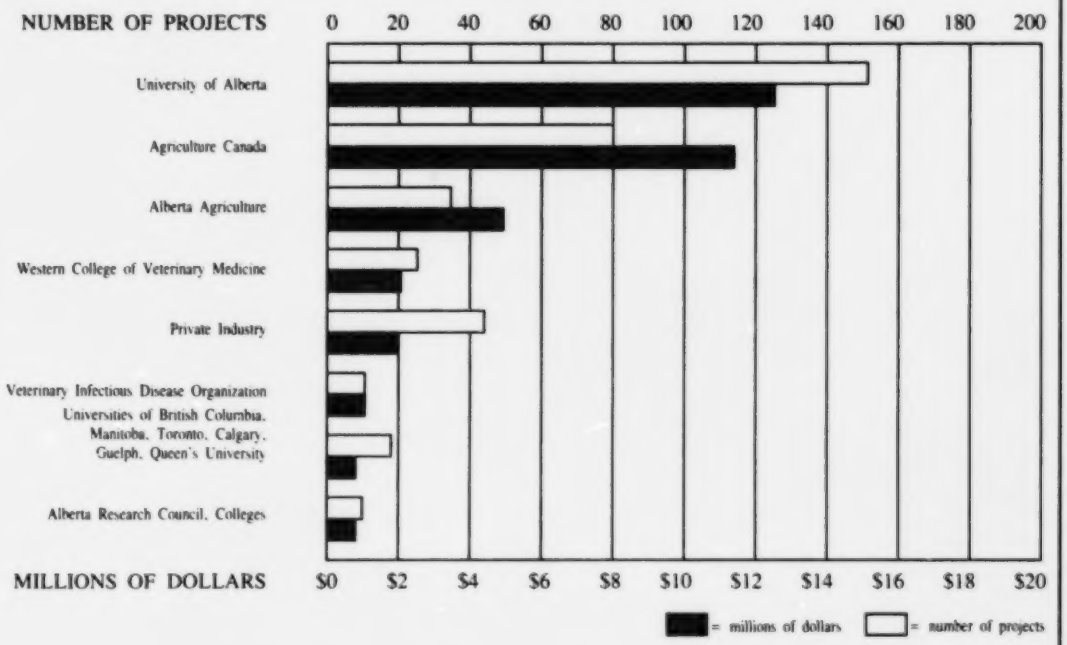
Year	New Projects		Renewed Projects		Total	
	Number	Funding	Number	Funding	Number	Funding
First Mandate						
1979-80	54	$2,133,680	—	$ —	54	$2,133,680
1980-81	31	980,465	51	2,210,642	82	3,191,107
1981-82	25	761,915	80	3,281,402	105	4,043,317
1982-83	40	1,594,500	101	4,116,911	141	5,711,411
1983-84	49	2,439,675	93	4,602,785	142	7,042,460
Subtotal	199					$22,121,975
Second Mandate						
1984-85	101	4,343,769	—	—	101	4,343,769
1985-86	38	1,513,079	65	3,309,988	103	4,823,067
1986-87	36	1,523,070	58	3,038,487	94	4,561,557
Subtotal	175					$13,728,393
TOTAL	374					$35,850,368

Distribution of On-Farm Demonstration Program Projects and Estimated Funding by Region — 1985-86

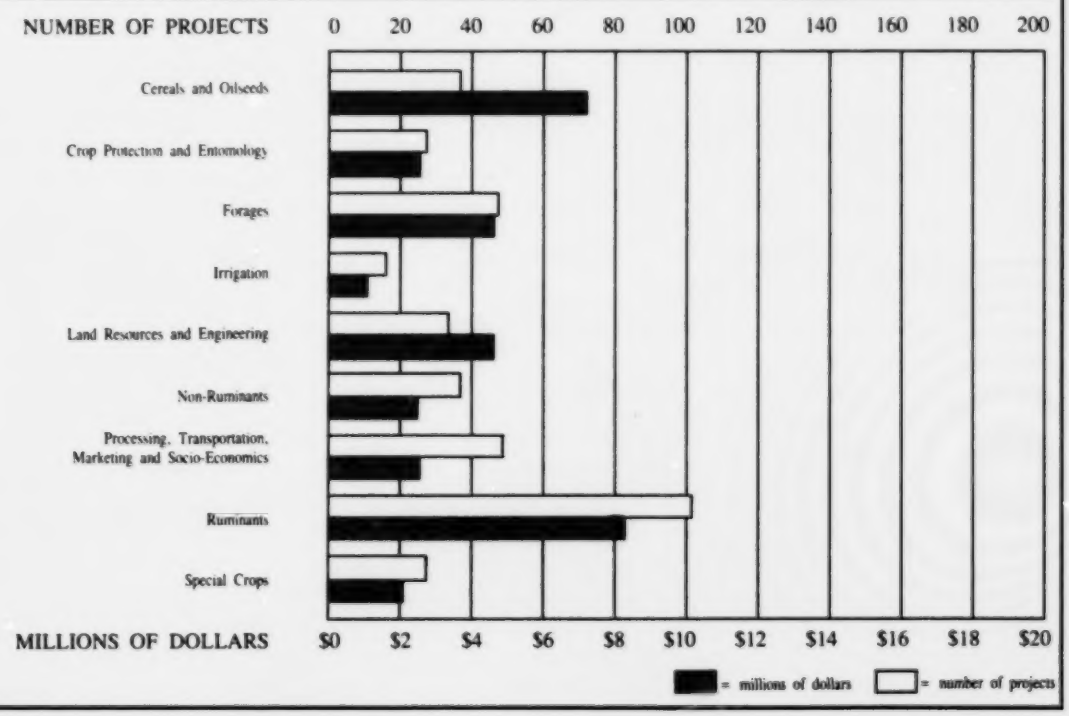
Region	Number of Projects		Funds Awarded
	New	Renewed	
Region I — Southern Alberta	7	6	$65,480.77
Region II — South Central Alberta	21	4	60,069.10
Region III — North Central Alberta	23	3	57,799.90
Region IV — Northeast Alberta	10	4	41,078.65
Region V — Northwest Alberta	18	4	65,702.42
Region VI — Peace River	14	3	68,039.16
TOTAL	93	24	$358,170.00

STATISTICAL TABLES

Distribution of Research Program Projects and Estimated Funding by Institution — **1979-80 to 1986-87**


NUMBER OF PROJECTS
0 20 40 60 80 100 120 140 160 180 200
University of Alberta
Agriculture Canada
Alberta Agriculture
Western College of Veterinary Medicine
Private Industry
Veterinary Infectious Disease Organization
Universities of British Columbia, Manitoba, Toronto, Calgary, Guelph, Queen's University
Alberta Research Council, Colleges
MILLIONS OF DOLLARS
$0 $2 $4 $6 $8 $10 $12 $14 $16 $18 $20
= millions of dollars
= number of projects

Distribution of Research Program Projects and Estimated Funding by Program Area — **1979-80 to 1986-87**



AGRICULTURAL RESEARCH COUNCIL OF ALBERTA

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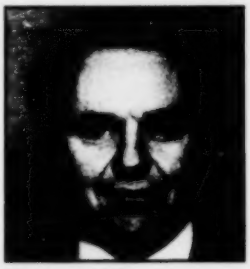
Mr. C.E. Anderson
Producer
Barrhead

Dr. R.T. Berg
Dean, Faculty of
Agriculture and Forestry
University of Alberta



Mr. E. Kadatz
Producer
Edmonton

Mr. N.A. Harris
Producer
Beaverlodge

Mr. E. Kaun
Producer
Penhold

Mr. J. Newman
Producer
Fort Vermilion

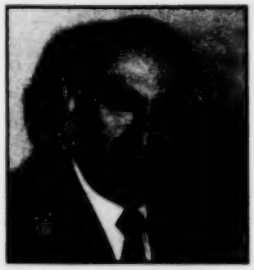
Dr. A.O. Olson
Assistant Deputy Minister
Alberta Agriculture
Secretary, April '78-Aug. '85

Mr. N.I. Pengelly
MLA
Innisfail

Mr. L. Niedermier
Producer
Lethbridge

Mr. E.J. Shimbashi
Chairman
Alberta Irrigation Council

Dr. R.W. Stewart
President
Alberta Research Council



Mr. W.H. Van de Walle
Producer
Legal

Dr. D.E. Waldern
Director
Agriculture Canada
Research Station - Lacombe

Dr. J.P. Mahone
Director, Research Division
Alberta Agriculture
Secretary, Aug. '85-Aug. '86

PROGRAM COMMITTEES

Program Area	Cereals and Oilseeds	Crop Protection and Entomology	Forages
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Vice-Chairman	Dr. J. Wiebe, *Edmonton* Alberta Agriculture	Mr. M.K. Price, *Edmonton* Alberta Agriculture	Mr. F.M. Mederick, *Lacombe* Alberta Agriculture
Members	Dr. K.G. Briggs, *Edmonton* University of Alberta	Mr. D. Hueppelsheuser, *Blackfalds* Producer	Dr. A.W. Bailey, *Edmonton* University of Alberta
	Mr. D. Duff, *Olds* Producer	Mr. J. Janzen, *Hythe* Producer	Dr. T.H.H. Chen, *Edmonton* Alberta Research Council
	Mr. G.J. Jackson, *Strathmore* Producer	Mr. L. Johnson, *Beaverlodge* Producer	Mr. A. Kumlin, *Calgary* Producer
	Dr. S. Kibite, *Lacombe* Agriculture Canada	Dr. B.K. Mitchell, *Edmonton* University of Alberta	Mr. J.S. McKenzie, *Beaverlodge* Agriculture Canada
	Mr. C. McNeil, *Didsbury* Producer	Dr. D. Struble, *Lethbridge* Agriculture Canada	Mr. P. Sorenson, *Berwyn* Producer
	Mr. N.J. Olsen, *Olds* Producer		Mr. N. Storch, *Hanna* Producer
			Mr. M.G. Turnbull, *Edmonton* Alberta Energy and Natural Resources

Program Area	Irrigation	Land Resources and Engineering	Non-Ruminants
Chairman	Mr. E.J. Shimbashi, *Barnwell* Producer and Chairman, Alberta Irrigation Council	Mr. J. Newman, *Fort Vermilion* Producer	Mr. W.H. Van de Walle, *Legal* Producer
Vice-Chairman	Mr. G.D. Hartman, *Lethbridge* Alberta Agriculture	Mr. P.J. Barlott, *Edmonton* Alberta Agriculture	Dr. R.G. Christian, *Edmonton* Alberta Agriculture
Members	Mr. L.E. Buckwell, *Fort Macleod* Producer	Dr. M.J. Dudas, *Edmonton* University of Alberta	Dr. F.X. Aherne, *Edmonton* University of Alberta
	Mr. B.L. Colgan, *Edmonton* Alberta Agriculture	Dr. R. Fessenden, *Edmonton* Alberta Research Council	Dr. C. Riddell, *Saskatoon* Western College of Veterinary Medicine
	Mr. P.D. Edlund, *Burdett* Producer	Mr. H.F. Greenfield, *Westlock* Producer	Mr. P.J. Mueller, *Lacombe* Producer
	Mr. L.R. Garner, *Hill Spring* Producer	Mr. P. Heck, *Manning* Producer	Mr. B. Perkins, *Wainwright* Producer
	Mr. J. Hajash, *Brooks* Producer	Dr. C.W. Lindwall, *Lethbridge* Agriculture Canada	Dr. A. Sather, *Lacombe* Agriculture Canada
	Mr. J.W. Thiessen, *Edmonton* Alberta Environment	Mr. A. Pimm, *Grimshaw* Producer	Mr. L.A. Vasselin, *Three Hills* Producer
	Mr. P. Vanden Dungen, *Vauxhall* Producer		Mr. B. Wildeboer, *Lacombe* Producer

Program Area	Processing, Transportation, Marketing and Socio-Economics	Ruminants	Special Crops
Chairman	Mr. N. Pengelly, *Innisfail* Producer and MLA	Mr. E. Kadatz, *Edmonton* Producer	Mr. L. Niedermier, *Lethbridge* Producer
Vice-Chairman	Mr. L.M. Lyster, *Edmonton* Alberta Agriculture	Mr. R. Weisenburger, *Edmonton* Alberta Agriculture	Mr. T.R. Krahn, *Brooks* Alberta Agriculture
Members	Dr. M.D. Lazar, *Edmonton* Alberta Research Council	Mr. D. Carlson, *Pincher Creek* Producer	Dr. E.W. Toop, *Edmonton* University of Alberta
	Dr. D. Russell, *Edmonton* Agriculture Canada	Mr. W. Heller, *Walsh* Producer	Mr. B. Baerg, *Vauxhall* Producer
	Mr. D.A. Neil, *Edmonton* Alberta Economic Development	Mr. B. Jenkins, *Pincher Creek* Producer	Mr. D. Forestier, *Edberg* Producer
	Mr. J.W. Smythe, *Lloydminster* Producer	Dr. J.J. Kennelly, *Edmonton* University of Alberta	Dr. D. Gerson, *Edmonton* Alberta Research Council
	Dr. F.H. Wolfe, *Edmonton* University of Alberta	Mr. J. Lawson, *Lethbridge* Agriculture Canada	Mr. W.E. Good, *Blackfalds* Central Alberta Florists Ltd.
		Dr. J.G. Manns, *Saskatoon* Western College of Veterinary Medicine	Mr. J. Hole, *St. Albert* Producer
			Dr. D.B. Wilson Agriculture Canada

REGIONAL REVIEW COMMITTEES

Region	I. Southern	II. South Central	III. North Central
Chairman	Mr. E.H. Horton, *Lethbridge*	Mr. C.S. Clark, *Airdrie*	Mr. W.A. Hall, *Red Deer*
Members	*Producers*	*Producers*	*Producers*
	Mr. G. Armstrong, *Bassano*	Mr. B. Clarke, *Olds*	Mr. W.G. Ballhorn, *Wetaskiwin*
	Mr. B. Otto, *Warner*	Mr. S. Jensen, *Standard*	Mr. E.O. Lindholm, *New Norway*
	Mr. L. Thacker, *Bow Island*	Mr. B. Lockhart, *Youngstown*	Mr. F.H. Mueller, *Lacombe*
	Mr. M. Vandervalk, *Claresholm*	Mr. W. Noy, *Rosebud*	Mr. K. Nelson, *Stettler*
		Mr. G. Smith, *High River*	Mrs. M. Sharp, *Lacombe*
	Alberta Agriculture Staff	*Alberta Agriculture Staff*	*Alberta Agriculture Staff*
	Mr. G. Frank, *Brooks*	Mr. D.N. Milligan, *Airdrie*	Mr. G.J. Bradshaw, *Red Deer*
	Mr. E.A. George, *Lethbridge*	Mr. L.J. Owen, *Airdrie*	
	Mr. B.R. Shaw, *Lethbridge*	Mr. R.A. Smith, *Airdrie*	
		Mr. L.J. Welsh, *Airdrie*	
Recording Secretary	Mr. D.J. LePine, *Lethbridge*	Mr. P.J. Dyck, *Airdrie*	Mr. D.G. Dowswell, *Red Deer*

Region	IV. Northeast	V. Northwest	VI. Peace River
Chairman	Mr. R.F. Berkan, *Vermilion*	Mr. J.B. Tackaberry, *Barrhead*	Mr. D.R. Young, *Fairview*
Members	*Producers*	*Producers*	*Producers*
	Mr. W.G. Hamblin, *Vermilion*	Mr. J. Bauer, *Thorhild*	Mr. L. Duby, *Falher*
	Mr. C. Harbin, *Rivercourse*	Mr. J.W. Lawton, *Niton Junction*	Mr. G. Murphy, *Peace River*
	Mr. B. Kotelko, *Vegreville*	Mr. D. Meunier, *Barrhead*	Mr. G. Hicks, *McLennan*
	Mr. M. Smith, *Bonnyville*	Mr. K. Porter, *Duffield*	Mr. D. Penson, *Valleyview*
	Mr. L.W. Tuck, *Vegreville*	Mr. C. Volkman, *New Sarepta*	Mr. J. St. Arnaud, *Girouxville*
			Mr. J. Simpson, *Fort Vermilion*
	Alberta Agriculture Staff	*Alberta Agriculture Staff*	*Alberta Agriculture Staff*
	Mr. B. Kennedy, *Vermilion*	Mr. M.O. Salomons, *Barrhead*	Mr. M.S. Kuryvial, *Grande Prairie*
	Mr. E.L. Treffry, *Vermilion*	Mr. W.J. Chapman, *Barrhead*	Mr. D.G. Spencer, *Falher*
	Mr. H.L. Yoder, *Lac La Biche*	Mr. R.L. Winchell, *Barrhead*	Mr. G.J. Tajcnar, *High Prairie*
	Mr. G. Gillund, *Smoky Lake*	Mr. W.R. Winchell, *Barrhead*	
Recording Secretary	Mr. T.D. Holmgren, *St. Paul*	Vacant	Ms. L.M. Ross, *Fairview*